

THE BIG FAST FOUR-By Ken W. Purdy

SPORTS CARS ILLUSTRATED

DECEMBER 1957

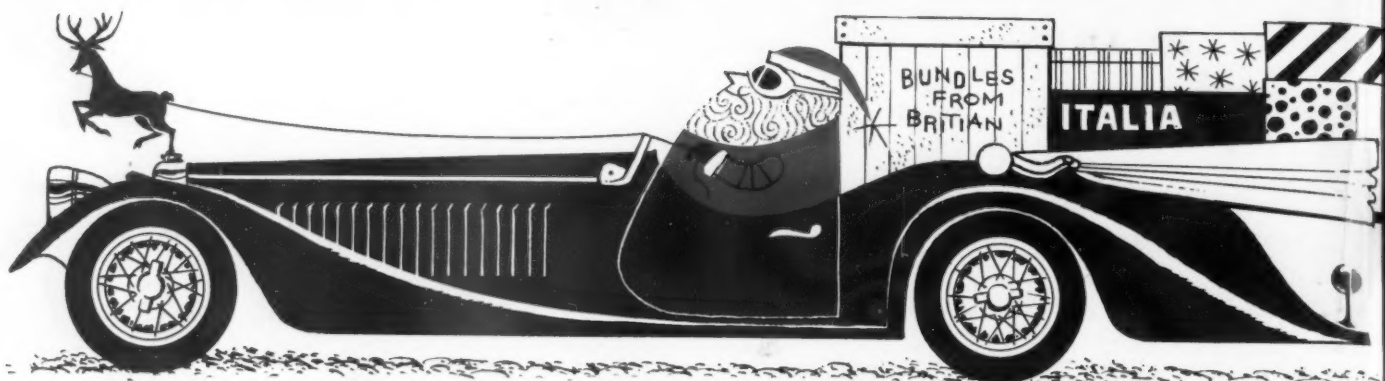
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EXCLUSIVE TESTS!

'58 CHEVROLET CORVETTE
MERCEDES 300SL ROADSTER



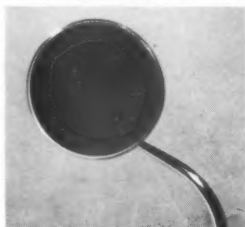
THE ULTIMATE CHRISTMAS GIFT-page 28



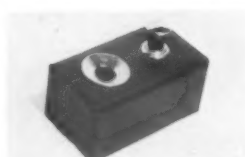
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DESMO BOOMERANG mirrors refuse to get out of shape. No matter how often or hard they are bumped, pushed or hit they spring back into the position you set them originally. Buy a pair, be twice as safe.

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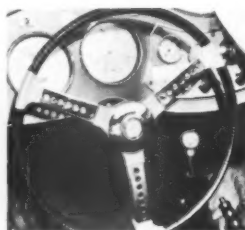


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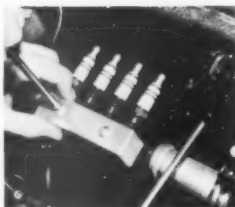


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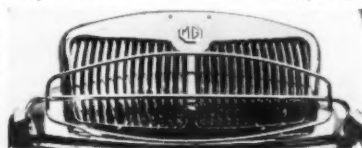
Healey (4 cyl.) Black, Tan, White

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Single bar style \$18.95



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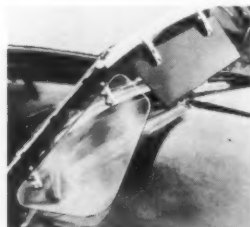
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Simi-chrompoli.....69

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VISON attaches without drilling to windshields of all MG and

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DEC 16 1957

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SPORTS CARS ILLUSTRATED

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no. 6 vol. 3

CONTENTS

road tests

- 1958 Chevrolet Corvette 18
Mercedes 300SL Roadster 24

features

- The Big Fast Four Ken Purdy 16
It's getting so you need a Ferrari
BMC Grabbed a Fistful Griff Borgeson 22
The MG Record Runs
Table Top Grand Prix Bob Coogan 28
The ultimate Christmas Gift

technical

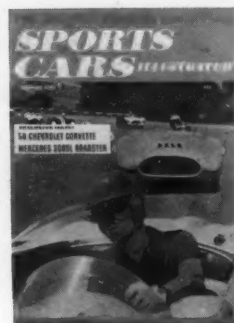
- Aston Martin DBR1-300 Karl Ludvigsen 32
SCI cutaway feature

competition

- The Midwest 500 Denise McCluggage 30
Elkhart Lake
Their Fastest Year Griff Borgeson 38
The 1957 Bonneville Nationals

departments

- Very Sincerely Yours 6
Letters 8
Technotes 12



Sure, we admit it — This month's cover is a bit of Carlyle Blackwell's camera magic. The dirty face belongs to Ken Miles who got that way honestly from hard Porsche pushing.

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Competition

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very sincerely yours:

PEOPLE often ask what there is to learn from the Bonneville Nationals, especially insofar as sports cars are concerned. Frankly admitted is the fact that streamliners prove out engines and driveline components; but what barreling a sports car down a straight line for upwards of 10 miles proves seems to be a bit of a puzzle.

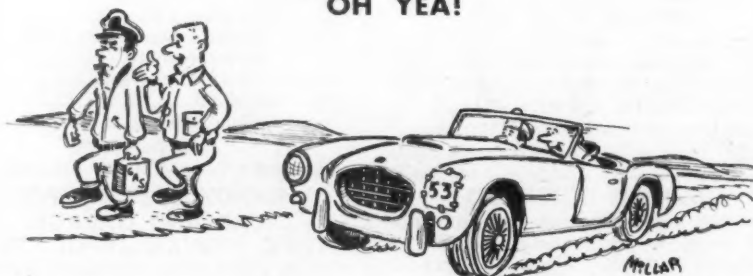
We can state bluntly that quite a bit can be learned and such learning doesn't concern itself purely with the upper limits an engine can be twisted without coming unglued. One thing shown this year was that the mere installation of a swing axle or DeDion rear end does not guarantee stability. Unless it is *right* it is awfully wrong. Further, a front end which gives a delightfully light steering at 70 or 80 or even 100 miles an hour on the road or a closed course can be horribly frightening at 120 or better. Taking things in order for the benefit of those who would try the salt next year, we can say from experience that reverse camber in a swing axle is deadly unstable under acceleration. It seems that heavy torque application tends to increase the negative setting to the point where traction is lost almost completely with violent wheelspin and little side bite. Where the DeDion is concerned, perfect alignment is a must. Tracking has to be perfect or violent rear-end steering is a result. As far as the front end is concerned, a neutral or slight positive caster that is a delight at normal speeds leaves a wheel that feels like mush yet sensitive and utterly tricky at racing speeds.

These things are directly translatable to road racing and even to fast highway use particularly where long fast straights and 100 mph bends are encountered. While the instability found at full-bore is not quite so pronounced it is still there, ready to pounce on the unwary at a sudden gust of wind. And there are a few courses where fully flat-out operation is standard on at least one section. Thus the lessons of Bonneville are implicit: a car set up for the road is NOT necessarily set up for racing; one must sacrifice some of the ease of low speed operation for stability at racing speeds just as a racing engine must sacrifice some low speed smoothness for high speed operation and reliability. This is not to say that you have to set up the car so that it would take a Stakhanovite to haul it off a straight line, but it is a good idea to remember that the car that feels like a dream at legal road speeds can be a holy frightening horror at racing velocity. Set up properly for speed the same car can feel as comfortable at 100-plus as it did at 30-minus. With production cars as well as racing equipment getting faster by the month such things are nice to know about. Any more questions?

Last month we pulled a sleeper—this being Merwin Dembling's wacky little fiction piece concerning what can happen when one carries a thing too far. Not that such items are going to be a part of the standard bill of fare but every once in a while in every editorial office something comes in that just can't be resisted. We tried this one on everybody from the office boy to the publisher and got the same delighted response in every case, so, since general men's magazines have been cutting in on our racket we decided to do likewise. But we hereby serve notice — any further efforts along that line will be of the same type; no portentous hero-driver epics or gory psychological lesson fairy tales will appear herein. That, gentlemen, is a promise.

—john christy

OH YEA!



"I DON'T KNOW WHAT YOU'RE SO MAD ABOUT. AFTER ALL, WINNING ISN'T EVERYTHING... IT'S ONLY A SPORT! WHAT REALLY COUNTS IS THE COMPANIONSHIP AND RELAXATION WITH FELLOW SPORTSMEN."

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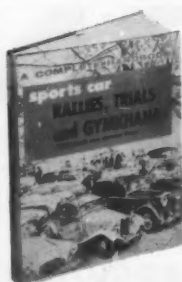


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letters

vanishing scratches

On page 23 of the July, 1957 issue of SCI is shown in picture #5 a crash helmet which supposedly had been tested in a similar manner to those appearing in the other photographs, or at least this is what is implied in the accompanying article.

I would like to know why this particular helmet should have a spotless appearance, whereas the helmet in picture #1, immediately to the right, shows extensive abrasion or smudges caused by the same test?

Louis B. Pierlot

P. O. Box 346

Inglewood 5, Calif.

The full-size pictures we received with the article showed that all the helmets tested had at least scratches, most of them, as the article said, a lot worse. However, in scaling down and reproducing any picture, the details of the picture are usually lost. But this is true of all pictures in every magazine, and none of the helmets we pictured were retouched.—Ed.

TELEPATHY

I have not long been a reader of your publication, SCI; not long enough. My first issue was the July '57 one. The article on 300 horses from 150 cubic inches was what caught my eye. After reading this issue from cover to cover I was very much pleased. I think this is the finest magazine of its type in America, I have now finished the August number . . . from cover to cover.

But I do have one great disappointment. I didn't start reading your magazine soon enough, and am very much interested in purchasing back issues.

I would like to know if you have a table of contents of all the issues since your firm took over the publication of this magazine?

Dennis Carrigan

716 County Line St.
New Castle, Pa.

In answer to all the inquiries we received questioning back issues; our January issue will include a table of contents covering all articles in the previous year's publication.—Ed.

SEMANTICS

After reading Griff Borgeson's article on road testing the Plymouth Fury in the August issue and thinking about it carefully, I have come to the conclusion that either Mr. Borgeson, or SCI, or both are getting "paid off" by Detroit.

Nobody could make statements such as he did about the Plymouth Fury in all honesty and be in his right mind. He stated, "Here is a big Detroit sedan that can easily out-corner many 'bona fide' sports cars." False reporting has always infuriated me, and to find material of this type

(Continued on page 10)

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letters

(Continued from page 8)

becoming a part of this fine magazine is deplorable. The article read strictly like an advertisement straight from the fantastic, lying pens of Detroit.

I know fellows who own all different kinds of sports cars, and who would be willing to meet your Mr. Borgeson on a road course and see just who would out-corner whom. I am one of them and own a Porsche Super Speedster. I would like to bet Mr. Borgeson \$1,000.00 that my Porsche will "out-corner" his Plymouth Fury.

David F. McGrath II
16022 Sunset Blvd.
Calif.

Sorry you were upset by our road test of the Plymouth Fury but I would like to point out that the word many does not mean all, and it would be a damn fine American car that could out corner your Porsche Super Speedster and my Porsche Coupe.

PURDY'S PEERAGE (Vol. 1)

In SPORTS CARS ILLUSTRATED Ken Purdy refers to Portago as the 12th marquis of his line. TIME, LIFE and SPORTS ILLUSTRATED say he was the 17th marquis. Why don't you get wise to the facts?

Lawton V. Bingham Jr.
Chicago, Illinois

TIME, LIFE and SPORTS ILLUSTRATED say that Alfonso Cabeza de Vaca was the 17th Marquis di Portago. SCI, Ken Purdy and WORLD NOBILITY AND PEERAGE (Annuaire de la Noblesse de France et d'Europe) Vol. 87, say he was the 12th marquis. You have any further questions, Junior?—Ed.

SQUISH PLEASE

My compliments on a very interesting magazine. I especially enjoyed your article "More Push for the Porsche" in the January issue.

Why not devote a little more space to such things as "Portago Portrait" (tremendous — more Ken Purdy please), or maybe some discussion on driving and cornering techniques or perhaps racing and hillclimb strategy. A very small percentage of us are ever going to design a piston crown lump or one of them there squish areas!

Tom Chambers
6136 Xerxes Ave. So.
Minneapolis, Minnesota

First, more Purdy coming up. Second, we leave driving technique to the experts, usually selfstyled, because we don't want to be responsible for all that smashed iron on the turns. Last, very few of our readers design squish areas, but about 100% buy or intend to buy sports cars. We feel the old criterion — measuring the rebound of the right foot after kicking the tires — is not the best basis for judgment.—Ed.

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Healey 100 Six..... 281	Model "A"..... 261
Ford Consul-Zephyr..... 184	Morgan Plus 4..... 194
Anglia-Prefect..... 130	Morris Minor..... 167
Ang.-Pref. '53-'54..... 224	Minor ohv..... 220
Hillman Minx ('49)..... 158	Rover 75 ('50-'51)..... 181
Minx Mk 4 & 5..... 190	60/75 90 '54-'55..... 227
Minx '55-'56 ohv..... 247	Renault 750..... 205
Minx late '56..... 267	Riley 2 1/2 litre..... 153
Jaguar XK-120..... 185	Sunbeam Rapier..... 263
Mk 7..... 197	Sunbeam Alpine..... 235
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A complete list of data sheets on request.

JAGUARS AND THERMOSTATS

In Technotes, SCI, August '57, you published some tips on cooling off hot-running Jags which I followed to the letter. Despite all this, my '56 roadster still ran as high as 90° Centigrade in town last summer (it was pretty hot up here). I was told that a solid expansion type thermostat would pass more water than a bellows type, having a smaller core. I tried the Dole DV-1 and found that the water temp seldom went over 85° C. even on the hottest days.

G. W. Hunt
Sudbury, Ontario

Your choice of a pellet or solid expansion type 'stat was a good one, but not because of the smaller core. Bellows type 'stats should never be used in high-pressure cooling systems (Jaguars run at 4 psi, American cars run as high as 10 psi) because, as the temperature rises, the pressure increases, forcing the bellows partially closed and restricting the flow of water. There is an exception to this rule; all cars of Chrysler manufacture are arranged so that the cooling system develops no pressure until the boiling point is reached and bellows 'stats are by then well open.

Too many owners worry excessively about 90° or 95° C. water temp in summertime city driving. After all, water won't boil until 100° C. in open air, and the 4 psi pressure cap will raise this to at least

105° C. (221° F.). Up to a point, the hotter your engine runs, the more efficiently it runs (and that point is well over 105° C.). The service manager of Jaguar North America runs his Jag all winter long at 95° C. by using a radiator blind, without any difficulties at all (and with plenty of cockpit heat).

My primary concern in 'stat selection for a Jaguar would be in winter driving where quick warm-ups are the problem. Certain pellet type (including the Dole) and all bellows type 'stats can be forced open by water pump pressure, thereby increasing warm-up time. The Thomson, Gabriel, HaDees, and Tru-Temp pellet type 'stats have a reverse action valve so that the higher the water pump pressure, the tighter the valve is pressed on its seat. For 'stats which start to open at 71° C. and are fully open at 83° C. the appropriate numbers for a Jag are 54, G105, H105, and 642. For 'stats which start to open at 82° C. and are wide open at 94° C. the numbers are 154, G105H, H105HT, and 642HT.

BRAKES ON THE M-B 190SL

One of our readers, experiencing difficulties with grabbing brakes as mentioned in our April 1957 road test, received the following letter from the factory:

In order to correct the brake system we

suggest that you have the following work performed:

- 1) The respective brake drum should be checked for eccentricity and if necessary should be re-finished on the interior diameter.
- 2) It should be made certain that the brake lining touches the brake drum correctly.
- 3) Check whether the washers of the automatic brake adjustment device, on the brake shoe are worn. If this is the case, have them replaced with new ones. If these washers are not available, the old ones should be re-conditioned, i.e. made plane with emery cloth. When doing so, attention should be paid that the washers are of equal thickness, which is expected to be 2.5—0.1 mm (0.100—0.004 in.). When adjusting the bleeding clearance, please note that this amounts to 0.8 mm (0.032 in.). The bleeding clearance is the clearance between the stud and the adjustment sleeve.
- 4) See to it that the brake shoes are operating properly and that they return completely after the brakes have been applied.

We recommend that you have this adjustment work done by one of our authorized service stations. Mr. Roy B. Bender,

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VW WORKSHOP MANUALS

Is there a shop manual for the VW available in English? I don't mean a warmed over version of the Owner's Manual but the real thing.

George J. Oremus
Pasadena, Calif.

The Workshop Manual published by the factory is pretty much for dealers only, although Autobooks of Burbank, Calif. has a few. A thoroughly satisfactory substitute is Floyd Clymer's Volkswagen Owner's Handbook, available for only \$2.00 from any of our bookstore advertisers. It is, in effect, a (door) pocket-sized expurgated edition of the factory's manual. The only omissions we noticed concern those jobs which require the most expensive special VW tools. The correct adjustment of the ring and pinion gears is an example which comes readily to mind; the necessary gauges for this job run to about \$100. Any job which the earnest owner could possibly tackle on his own is described in words and pictures taken directly from the Workshop Manual. In some places, the factory's awkward English has been improved upon noticeably. The necessary tools may be purchased from VW dealers or any of our advertisers who advertise Metric tools.

This VW Owner's Handbook is not to be confused with the collector's item that Clymer also sells, an owner's manual for a very early (1951?) VW.

ROLL STIFFNESS vs. WEIGHT TRANSFER

I would like to take issue with Mr. Ludvigsen's statement in Consistent Champion, Part II (SCI, Oct. '57) that "The more roll stiffness, the lower the overall weight transfer, and the better the car's sheer traction." This is one of those statements that gets talked about a lot, while the more important but less obvious factors are not even mentioned.

The mass center or c.g. does move sideways a little bit with body roll (in an arc about the roll axis), and this really is weight transfer. In addition, however, there is the much larger item of load transfer due to the height of the mass center above the ground. Both weight and load transfer are bad because the traction available (as a percentage of the vertical load) decreases as the load goes up,

and the outside tire loses more than the inside one gains. As used here, traction means the vector sum of side load and driving thrust.

Now, the relation between c.g. height and front and rear load transfer is best analyzed in two stages, one above and one

(Continued on page 14)

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TECHNOTES

(Continued from page 13)

below the roll axis. (The roll axis is that elusive line about which the body rolls when the car is subjected to a side load; it is a line connecting the front and rear roll centers. The roll center of a suspension is established by its geometry and is unrelated to its spring rates or damping. Unfortunately for those of us who wish to make simple analyses, the roll centers of many suspensions move about as the springs deflect and the geometry changes, and therefore so does the roll axis. The following discussion, like most of this kind ignores this complication, but that needn't distract us from the essentials presented here.)

The effect of a side (centrifugal for instance) force acting at the c.g. is equivalent to an equal force acting at the roll axis directly below the c.g. plus a "couple" about the roll axis equal to that force times the height of the c.g. above the roll axis. The side force at the roll axis goes to the front and rear tires as side loads in proportion to the car's fore and aft weight distribution. Multiply each part by the height above ground of that end's roll center and divide by its tread; the result is load transfer, an increase in the load on the outside or downhill tire and an equal decrease on the inside tire.

The couple about the roll axis causes the body to roll; the amount of roll is indeed controlled by the total of front and rear roll stiffness, but the load transfer required to balance this roll couple is determined solely by the height of the c.g. above the roll axis. How it is distributed to the front and rear is established by the relation of front and rear roll stiffness. Summing up, the total load transfer (left vs. right) is established by the height of the c.g. above the ground, but its distribution to the front and rear wheels is controlled in the first part by suspension and in the second by the ratio of front and rear roll stiffness.

Since it's the set of tires (front or rear) with the poorest traction that limits cornering speeds, Jano designed the D50 to get one set no worse than the other. In other words, neutral steer at the limit. Colin Chapman uses the same philosophy in the Lotus.

In the D50, the rear roll stiffness (and damping, too, which controls the transient) was reduced to favor rear-end traction, thus permitting the use of power and still achieving neutral steer. With too much power, the rear end would slide; with too little, the rear would stick and the front would plow. Remember the pictures of Fangio at Silverstone in 1956? It's no wonder the drivers didn't like this, as it requires such a well-educated right foot, but it's still a darned good theory and it may yet come through as a definite winner.

Al Fonda
Buffalo, N. Y.

Letters of this sort are always most welcome, but the Technical Editor would like permission to amend them where it seems desirable, as he has done above.

under the hood

NEW FOR '58

THE most fascinating thing about the "all-new" Edsel is that for a car whose prestige rating lies between the Mercury and the Lincoln, it uses chassis components from the Ford (for the Ranger and Pacer) and the Mercury (for the Corsair and the Citation). Hmm.



From Frankfurt, Germany come all sorts of new car announcements. First there are two new soft tops, the VW Karmann-Ghia with only minor changes, and the fascinating Goggomobil which is now available with your choice of three engines ranging from 250 to four—count them—FOUR hundred cc! It has an electric pre-selector gearbox and is a ball of fun to drive.



While we're on the small car kick, Zundapp are now merchandising their Janus in the US; no room for a picture but it looks like two Isettas welded together back to back with a door at each end. The rear seat passengers sit facing the rear. The fun you couldn't have with a dummy steering wheel and a very conspicuous rear-view mirror!



The busy men at Porsche have come up with a fistful of changes; externally the hard top option on the expensive convertible model stands out. Harder to see is the new muffler and the exhaust pipes which run through the bumper guards for increased ground clearance. Form follows function, but . . . ?

Inside, the Supers have the biggest change, having gotten rid of their biggest headache, the Hirth roller bearing crankshaft. As well as making the engine quieter and cheaper to maintain, the use of a normal crankshaft should reduce the cost of the Super. All Porsches will now have two twin-choke carbs (Zenith on the normal and Super) and the '58 Super Speedsters will be giving the Carreras fits on some race circuits next year, although the rated horsepower hasn't changed.

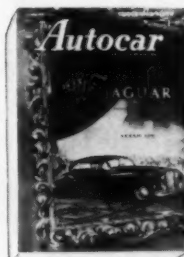


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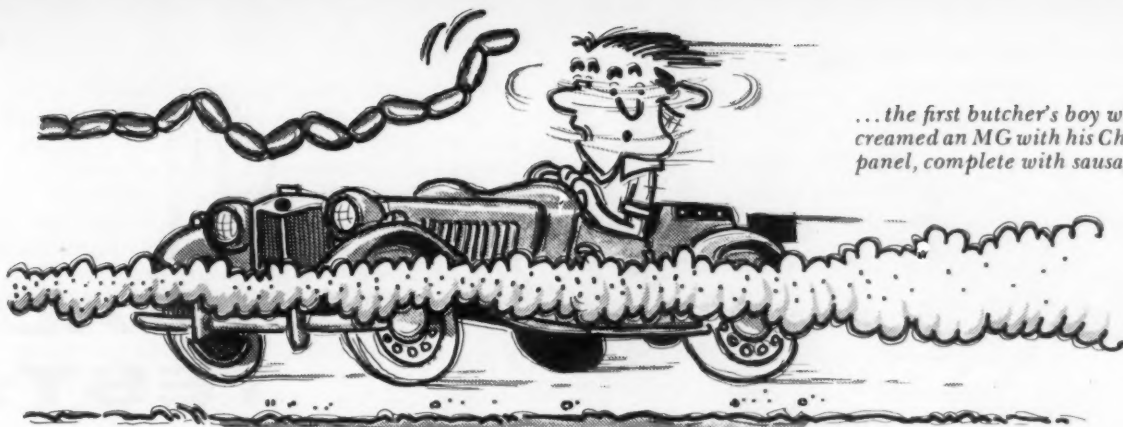
THE BIG FAST

*The crude business of blowing off
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these days you **NEED** a Ferrari!*

by Ken Purdy



"I murdered him in the bends but . . . he caught me on the straight" used to be the standard cliché of the hero driver. Now, the shoe is on the other fellow's foot.



...the first butcher's boy who creamed an MG with his Chevy panel, complete with sausage.

IN the year of Our Lord and Grace 1936, when I was laboring 14 hours a day on a small New England newspaper, and for a wage that would not today tempt a totally unambitious office-boy, my publisher decided that a road-race would make an excellent promotion stunt. He was a Yale man and he knew The Right People—and only The Right People drove sports cars in those days. He made a few phone calls and a couple of Saturdays later the town was stirred by the sight of some strange-looking automobiles, most of them wearing open pipes, and all of them driven by citizens who were obviously skilled at getting the most decibels out of the least number of cubic centimeters. I wish I could remember what they were driving, but I was young and innocent and all I can recall is a gaggle of TA MG's and a Type 35 Bugatti. Some of them were on tow, but I can remember only one of the tractors: an impressive 12-cylinder boat-tail Auburn roadster. As it turned out, the city fathers put the thumb on the race, but before the dashing pilots left they had managed to blow off everything in town. I remember a LaSalle sedan in earnest pursuit of one of the MG's. It was pretty funny. Of course, if that lamp-post hadn't been there the LaSalle might have made the corner . . . maybe.

After the War, when the first TC's came in, a lot of new boys were recruited for the sport—and I don't mean The Sport, exactly—I mean the crude business of blowing off American iron. I remember one particularly adept practitioner named Stevenson. (Yes, I remember his first name, too, which began with B. and rhymed with spruce, but he has since reformed and gone straight). He was extremely good at cutting, say, a Buick out of the herd of a Sunday, getting in front of it and irritating its driver by weaving back and forth until he was sure the fellow was on the *qui vive*. Alertness on the part of the prospective victim was important, you could get hurt otherwise. When he was sure the fellow was ripe for the plucking, Stevenson would

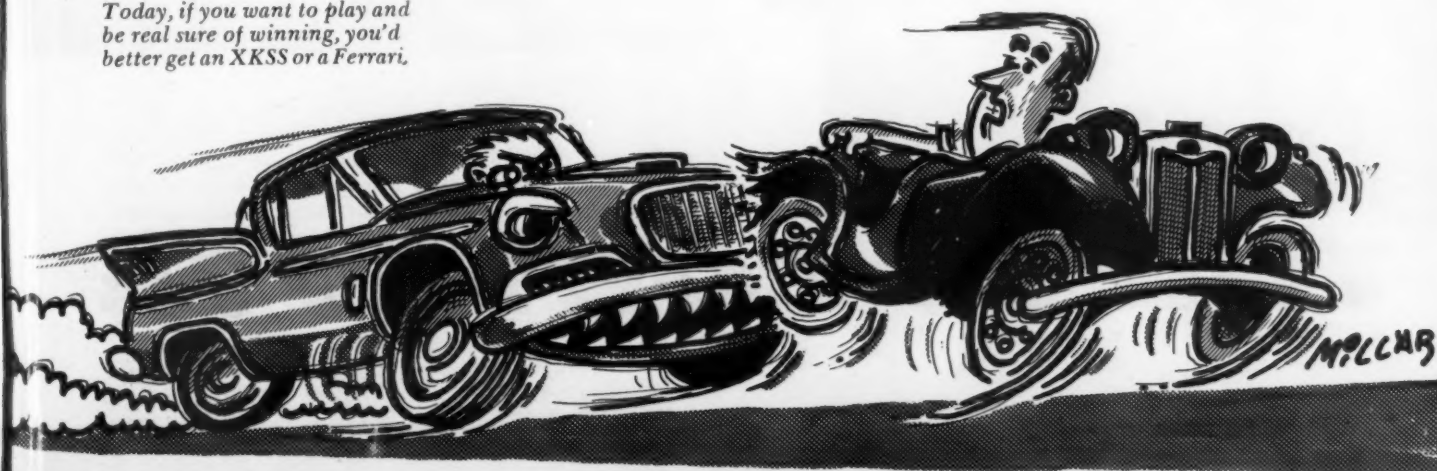
suddenly stand on everything, eye in the mirror. Just as the Buick had the panic button down and locked, Stevenson would dump the TC into first and take off, leaving his victim standing in the middle of the road, the body of the Buick going "whoomp, boomp" on its big fat springs like some crazy see-saw. This was a specialty, but of course everybody had a favorite corner for sucking people into, and the business of hanging on to a Detroit until big gobs of red-hot carbon began to blow out the pipes was common.

It was all good fun, if not very clean fun, and people who heard the tale told it to other people who told it again, and a whole generation of sports-car drivers was reared up, all of them believing that they could dust off anything that carried a Made In USA tag. Our English cousins believed this as Holy Writ, and many of them still do; but on this side of the pond, in case you haven't noticed, it's been getting harder and harder the last few years. I don't know the name of the first butcher's delivery boy who creamed an MG with his Chevvie panel truck, with two sides of beef and fifty pounds of sausage in back, at that, but somewhere there should be a monument to him because he was a Pioneer, to be sure. Yes, it's been getting harder lately, and today, if you want to play, and be real sure of winning, you'd better have an XKSS or a Ferrari *America*. Running anything less potent, you may not quite make it. And I'm assuming now that you are standing at the traffic lights alongside something strictly stock, never mind oddments like the Studebaker station wagon with the blown Chrysler in it that a friend of mine currently amuses himself with. I'm talking now about ordinary go-to-meeting five-passenger sedans, machinery like the Plymouth *Fury*, the Dodge *D-500*, the Studebaker *Golden Hawk*, the Chrysler *300C*.

These are automobiles that will run from 115 to 145 miles an hour, that will get to 60 in the 7-to-9 second bracket, and will stay right-side-up in a bend while they're

(Continued on page 44)

Today, if you want to play and be real sure of winning, you'd better get an XKSS or a Ferrari.





SCI
**ROAD
TEST:**



THE '58 CORVETTE

TO mark the fourth birthday of the Corvette, its proud parents, the Chevrolet Motor Division, have announced the 1958 model which has undergone some extensive but not too important changes on the surface and a few rather interesting ones underneath. Starting right at the plastic body, the use of aluminum reinforcements in the cowl structure, inaugurated in mid-'57, has been extended to include the so-called "rocker panels" under the door openings. Bumpers are now bracketed to the frame in conventional American style, relieving the front and rear body panels of loads that are not rightfully theirs. These two items raise the weight "less than 100 pounds", but for racing, most of it can be unbolted and left in the pits without the SCCA batting an eye.

Uncowled dual headlights show how attractive most American front ends would be if we'd get off this "I'm longer than you are" kick. Just below them are really large holes for blasting fresh air onto the brakes, but on our test car, alas, the "holes" were painted black! More on this later on.

Further production experience with the F.I. nozzles and metering controls permits closer control over the air-fuel ratio this year. The warm-up diaphragm is now more sensitive and the air filter is also changed. On all Corvettes, the generator is now on the right-hand side so that the fan-belt engages the water pump pulley over a far greater arc, reducing slippage at high revs. Common to all '58 Chevy's with the 283 cubic inch are a new distributor rotor and a cap with longer sides to help keep out moisture.

Like most manufacturers, Chevrolet is none too happy about some of the attempts made to bring "boulevard" engines up to all-out F.I. specs. More is required than just a

The cornering of the "boulevard" Corvette cannot be described as flat, but to the driver it certainly feels very secure.



Duntov high-lift cam and a handful of solid lifters, although the factory is not too specific as to what is. What they have done is clarify the picture of available options.

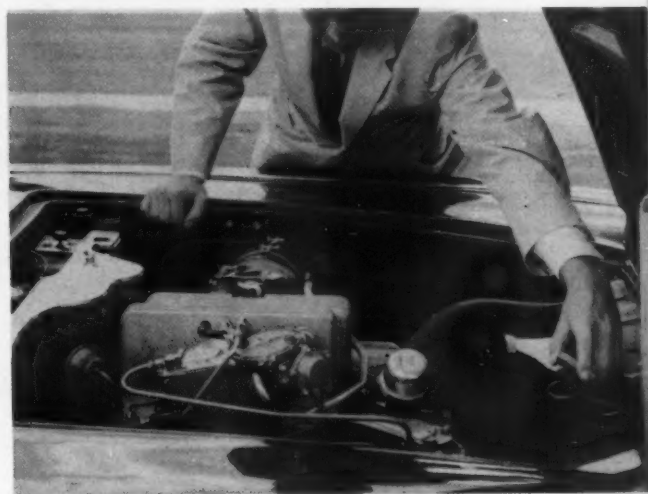
First of all, here is what an absolutely standard Corvette would have (later we will get into what else can be ordered on the car at the time of purchase): The 283 cubic inch V-8 with a normal camshaft and hydraulic tappets (limiting revs to about 5500, as on our test car), a single four barrel Carter carburetor (#3744925), the "close-ratio" three-speed transmission (also used on other Chevy's with the 283 inch engine), a 3.70/1 ring and pinion, 6.70x15 tires (tubeless



Centrally located, the tachometer may now be readily observed, though it suffers from unwanted reflections off the curved lens, as do the other instruments.



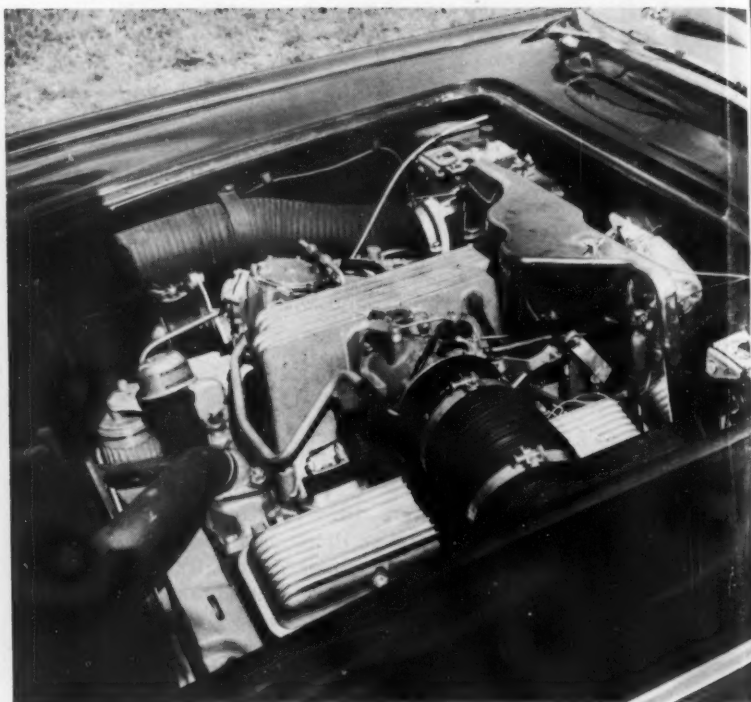
The trunk space shows the American influence on sports car design; observes the Technical Editor, it's huge.



The louvers in the hood aren't real but everything underneath it is, and in a very big way.



Fitted with prototype linings, the brakes stood up to SCI's severe brake test very well indeed, considering that full-size wheel discs were worn during the test.



Accessibility of the fuel injection "box of tricks" is really great. There are lots of little bits and pieces but unlike carbs, here they're on the outside.

or not, to choice) on 5Kx15 disc wheels, and a choice of either the hardtop or the hand-operated folding one.

Options available that do not change the basic car's essentially boulevard character include: Powerglide transmission and with it, a 3.55 rear end; electric window equipment (which is no lighter than the hand-operated kind as reported elsewhere); a hydraulic mechanism for the folding top; and for the belt-and-suspenders types, both the hard and soft tops may be ordered on one car.

To improve performance, one can order either two Carter quads or fuel injection (we had the latter), the manifolds differing slightly between Powerglide and stick-shift cars. But for the most in "go", there is the 290 bhp @ 6200 rpm "D" fuel injection engine which features a 10.5/1 compression ratio, the high-lift cam, solid lifters, an air intake extension to bring in cool outside air, a reputedly "more efficient radiator", and a tachometer reading up to 8000 rpm. Especially designed for this engine, but definitely available on its own, as on our test car, is a really delightful, all-synchronized, four-speed gearbox.

In much the same category are the Positraction limited-slip differentials available with either the 3.70, 4.11, or the 4.56 ratios (and though you can't order it this way, the normal Chevy 3.89 gears will fit the carriers of either the 4.11 or the 4.56 Positraction diffs). To give slightly better side-load characteristics, wider (5½Kx15) rims are available for fitting 7.10 or 7.60x15 tires, racing or otherwise; the difference between the two enabling last minute "gear" swaps to be made at races.

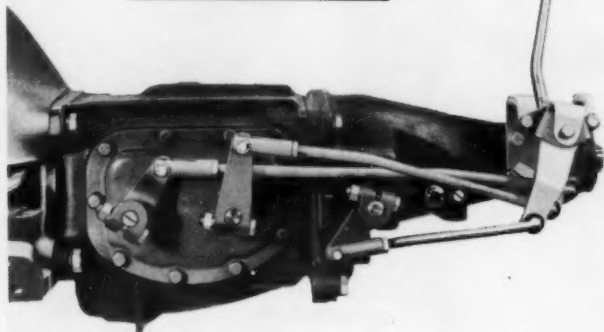
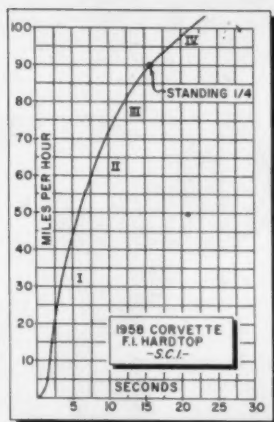
For the guy who is really serious about his racing, a heavy-duty brake and suspension package is offered in an all or nothing deal. To get this package, you must also order the "D" engine and the Positraction differential. But what a package! Stiffer front coils give a spring rate 13½% higher.

The anti-roll bar is 40% stiffer. The rear springs, with an extra leaf, have a 9½% higher rate. The shock absorbers, with 88% larger working area, have different valving and finally, the steering ratio is changed from 21/1 to 16.3/1 by lengthening the third arm idler.

The famous Cerametallic brakes are fitted and it is interesting to note that although the drum diameter remains at eleven inches and the shoes are a full half inch wider, the total braking area is actually reduced 20%, because the forward shoes are lined over only half their length. To reduce the amount of braking done by the rear wheels, the brake cylinders there are only 0.875 inch diameter instead of one inch, whereas the front ones remain at 1.125. The drums have cooling fins cast on the rim, and as a further option, vented backing plates with air scoops are available. Those large holes up front that we mentioned before may then be opened up and a duct will carry air back, not just to the front brakes, but under the door sills all the way to the rear ones, too.

The Cerametallic brakes are definitely not intended for all types of driving. Corvettes so equipped are delivered to the customer with a placard on the windshield which reads, "This car is not for street use". Until warmed up, they are quite apt to pull strongly to one side or the other; not just the thing for Grandma on her jaunts to the grocery store!

Faced with the realities of the American scene, Chevrolet now follows tradition in marketing two apparently similar, yet actually quite different sports cars, one for the every day sort of user who might occasionally go racing, and another for the serious competitor in the Production category. However, in this case, the engine mods from the racing model are readily available without the HD brake and suspension kit, which may seem rather the wrong way around. But at least you can't get the "D" engine with the



One of the Corvette's secrets of success is this really splendid 4-speed all-synchromesh gearbox.

Powerglide transmission! That *would* be too much!

One of the pleasanter aspects of this test was that, being in the nature of a sneak preview, the entire operation was conducted on GM's Proving Grounds at Warren, Michigan. After the brake fade and acceleration tests were completed on a 1½ mile level straight, we turned the Corvette loose on a sample road circuit that rather resembled Torrey Pines with its multiplicity of turns of varying radius, camber, and even surface texture. A visitor is said to have remarked naively that GM, with all its money, certainly could have afforded to build better roads than these. Be that as it may, we were able, in a very short time, to discover how the '58 Corvette behaves in nearly every conceivable road situation. Briefly, it may be summed up as "very well indeed."

There are no tricks at all to the steering, which is amazingly light at all times. We went through a series of ess-bends at speeds ranging from 40 to 70 mph. The only time the car felt at all uncertain was on a special piece of pavement featuring ridges running parallel to our direction of travel. The reaction here was pretty typical, the back end wanted to walk out somewhat when we crossed them on a diagonal. Elsewhere on the track, when we abruptly crested a sharp rise in the middle of a seventy miles an hour bend, the front of the car moved out only slightly, a tribute to a well-arranged front suspension and the high polar moment of inertia. On really tight hairpins, tighter ones than you have any right to be going that fast on, the steering is still light, though the steering lock seems to call for rubber arms. (The HD kit reduces the 3.7 turns lock to lock to under 3.)

Whether on fast bends or slow, when you reach the limits of adhesion, the back starts to come around in a calm, unhurried manner that leaves you plenty of time to get off

(Continued on page 50)

1958 CHEVROLET CORVETTE F.I. HARDTOP

PERFORMANCE

TOP SPEED:

Est. 125 mph (see text)

ACCELERATION:

From zero to			
30 mph	3.3 sec.	60 mph	12.2
40 mph	4.5	90 mph	15.7
50 mph	5.8	100 mph	21.4
60 mph	7.6	Standing 1/4 mile	15.7
70 mph	9.5	Speed at end of quarter	90 mph

SPEED RANGES IN GEARS:

Corresponding to 750-5500 rpm			
I	0-56	III	13-93
II	10-72	IV	17-top

FUEL CONSUMPTION:

	Test Car	Competition
Racing	15 mpg	est. 8 mpg
Average driving (under 60 mph)	18.5 mpg	

BRAKING EFFICIENCY:

(12 successive emergency stops from 60 mph, just short of locking wheels):

1st stop	60
2nd	60
3rd	63
4th	63
5th	59 (rear wheel locked momentarily)
6th	63
7th	63
8th	60
9th	59 (rear wheel locked momentarily)
10th	62
11th	62
12th	64

SPECIFICATIONS

POWER UNIT:

Type	V-8
Valve Arrangement	Pushrod, in-line ohv
Bore & Stroke	3.875 x 3.00 in (98.4 x 76.2 mm)
Stroke/Bore Ratio	0.774/1
Displacement	263 cu in (4640 cc)
Compression Ratio	9.5/1 (10.5/1 with optional camshaft)
Carburetion by	Rochester constant flow fuel injection (one or two Carter quads optional)
Max. Power	250 bhp @ 5000 rpm
Max. Torque	305 lb-ft @ 3800 rpm
Idle Speed	750 rpm

DRIVE TRAIN:

Transmission ratios	Test Car	Optional
Stick shift:		
I	2.30	2.21 (non-synchro)
II	1.66	1.32
III	1.31	1.00
IV	1.00	—
Rev.	2.25	2.11
Powerglide Low	3.52-1.82	
High	1.62-1.00	
Rev.	1.82	
Final drive ratio (test car)	3.70 (hypoid)	
Other available final drive ratios	3.55 (std for Powerglide), 4.11, 4.56	
Limited slip "Positraction" differential available with the 3.70, 4.11, and 4.56 ratios.		
Axle torque taken by	Leaf springs	

CHASSIS:

Wheelbase	102 in
Front Tread	57 in
Rear Tread	59 in
Suspension, front	Unitized, independent, unequal length wishbones, coil springs, 11/16" dia anti-roll bar (13/16" optional)
Suspension, rear	Semi-elliptic leaf springs
Shock absorbers	Tubular hydraulic, 1" piston diameter (1 1/8" optional)
Steering type	Semi-reversible, recirculating ball, center-point linkage
Steering wheel turns L to L	3.7
Turning diameter	38 1/2 ft right, 39 ft left
Brake lining area	157 sq in (121 sq in optional—see text)
Tire size	6.70 x 15 (7.10/7.60 x 15 optional)
Rim size	5K x 15 (5 1/2 K x 15 optional)

GENERAL:

Length	177 in
Width	73 in
Height	51 in
Ground clearance	6 in
Curb weight, factory data	2912 lbs
Weight distribution, F/R	52 1/2%/47 1/2%
Fuel capacity	16.4 U.S. gallons

RATING FACTORS:

	Test Car	Competition model with 4.11/1 gears and 7.10 x 15 tires
Bhp per cu in	0.88	1.02
Bhp per sq in piston area	2.65	3.07
Torque lb-ft per cu in	1.08	1.02
Pounds per bhp	11.6	est. 10.3
Piston speed @ 60 mph	1420 fpm	1550 fpm
Piston speed @ max bhp	2500 fpm	3100 fpm
Brake lining area per ton	108 sq in/ton	83 sq in/ton
Speed in IVth gear @ 1000 rpm	21.4 mph	19.4 mph



Rain made Sterling's run impossible until the evening of the 24th. Entering cockpit in near-dark, he set 245 mph record.

THE WEEK BMC

GRABBED A FISTFUL

by Griff Borgeson

*When the men of Abingdon go after records they
don't fool around. This time they were out for
four miles a minute and they made it with speed
to spare — 245 miles an hour from 91 cubic inches!*

DAYLIGHT was almost gone and a huge storm mass was boiling in from the west. MG's time on the salt would run out the next day and the weather prediction was for rain. The assault against the 204 mph international Class F record set by Lt. Col. Goldie Gardner 18 years before had to be made now, at dusk. Stirling Moss, reclining at the controls of the brand new MG streamliner, grinned at Captain George Eyston, manager of the record runs. "George," he said, "we'll set new records today if you have to stand at the far end of the course holding a candle for me to aim at." Nobody laughed much; Moss' quip was too close to the truth. Deftly Alec Hounslow (SCI June '57), replaced the warmup plugs with hard ones. The canopy was buttoned down around Moss, and six men gave the tiny streamliner a push start.

The 1489 cc engine came to life with a soft, almost purring exhaust note, but immediately started to load up badly. As the car drove away, we could hear it popping back until the sound dropped below the horizon of audibility.

The first run didn't do it. The car got a fast plug change at the far end of the course, and Moss stormed back, making good time through the clocks — until the car lost third gear. Moss, Eyston and MG's chief engineer Syd Enever had a quick consultation. Did they dare to make another run without pulling the gearbox? "Let's go, damit," said Moss. His neck was farthest out and his opinion carried. With the sun well below the western peaks he vaulted into the narrow cockpit, was sealed in, and took off. Less than an hour from the time of the first run, USAC's Art Pillsbury, timing for FIA, had recorded these new International Class F records:

one kilometer	from 204.3 mph to 245.64 mph
one mile	from 203.9 mph to 245.11 mph
five kilometers	from 200.6 mph to 243.08 mph
five miles	from 189.5 mph to 235.69 mph
ten kilometers	from 182.8 mph to 224.70 mph

The three-stage race against time — against clock, daylight and calendar — was won handsomely, but only barely without recourse to beacon lights.

MG's preparation for the runs was a great deal better than the last-minute difficulties might imply. Eyston and Enever, both past-master veterans in the game of record breaking, overlooked nothing in the conduct of the attempt and the design and outfitting of the machine. Moss, star that he is, was MG's choice to drive the EX 181. But to guard against the unforeseen, the company retained California's Phil Hill as stand-by driver.

Moss was busy winning the Pescara Grand Prix for England and Vanwall, and couldn't make it to the Salt until the night of August 20. Hill, fresh from a second place in the Swedish G.P., was there on the 15th, in time for good weather and a dry course. To him fell the job of letting the machine out for the first time on the salt. The life-expectancy of the engine was fairly limited, and Hill was instructed to take one warm-up run at about 150 mph and then to open the tap to limited but record-breaking revs on the return trip, and make a fast two-way run. Thus, even if Moss had not been able to make the official runs, Hill's times would insure the success of the EX 181 mission.

Phil's first, slow run in the car was no joyride. Once the car was motating rapidly, there was a startling drop in atmospheric pressure in the cockpit. Worse, the instant he backed off on the throttle a flood of nitrobenzine fumes filled the driver's space — pungent, acrid, dizzying and nearly overwhelming. But Hill brought the car to a stop with perfect control and had a hole cut in one of the radiator air ducts, which in this car pass by the driver's head; the high-pressure fresh air made the rest of the runs vastly more tolerable.

Of the EX 181 Hill said, "It's a peculiar sensation, driving
(Continued on page 52)

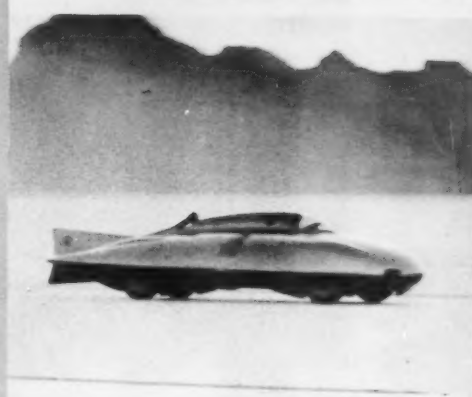
Enever requested the smallest high-speed tires ever made. Dunlop complied.



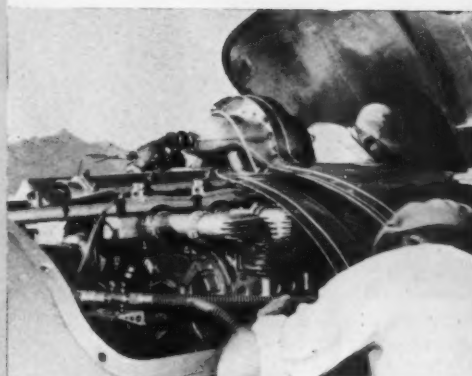
Dave Ash, set International Class G record of 118.25 in EX 179.



✓ *MG EX 181 is one of the most aerodynamically perfect streamliners ever built. Even the wheels are faired.*



Huge eccentric-vane 30 psi boost Shorrock supercharger was almost as big as engine in EX 181.



Phil Hill was Moss' standby driver. He drove both EX 179 & 181.



SCI ROAD TEST: MERCEDES 300SL ROADSTER

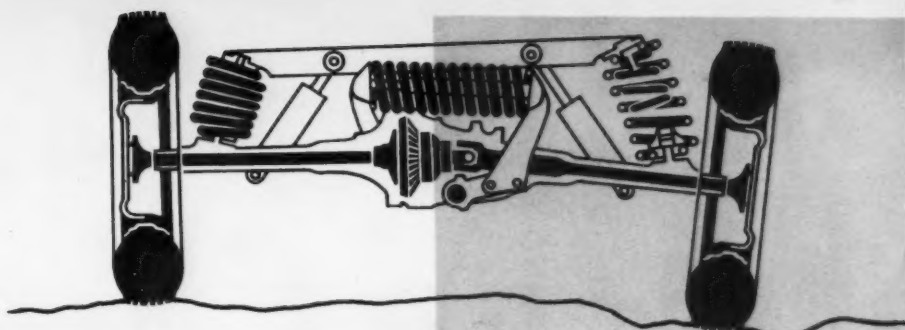


In this competition model, Paul O'Shea placed third overall and first in class in 1957 Watkins Glen Grand Prix.

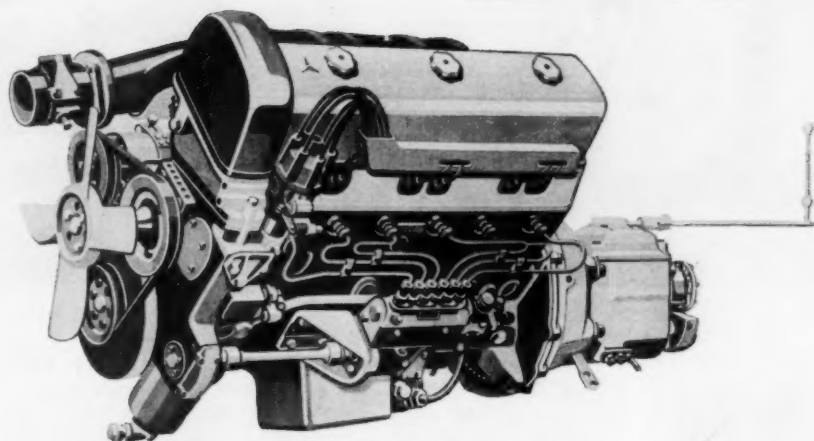
IN 1954, after racing the very successful prototype for two years, Daimler-Benz AG introduced the 300SL coupe as a series-production car and created a storm of exclamations and alarms. Most of them were to the effect that they'd never build a hundred of them, much less sell them, and how can you call a car like that stock? When all the fuss had calmed down, most of the noisiest talkers were standing in line outside their nearest Mercedes-Benz dealer. It seems now that in practically no time at all there were gull-winged coupes all over the place, especially at SCCA races. Then there was that really startling announcement

that D-B had completed their 1000th 300SL. Not a hundred, mind you, but a thousand!

Meanwhile, the engineering department at Untertürkheim had cooked up a low-pivot-point swing-axle for the W196 Grand Prix car. It soon appeared on the 190SL and some of the sedans but oddly not on the fastest and most potent car of the line. Because the complicated frame of the coupe had to be extensively redesigned to accept this change, it was some time before word was out that the improved rear suspension would be on the 300SL, but only on the Roadster model which would require a considerably



The latest edition of the low pivot swing axle features a compensating spring, permitting much lower roll stiffness for the same spring rate.



Slanted engine installation keeps the complex Bosch fuel injector pump out of reach of prying eyes and would-be tinkers. It's just as well it does.

The business-office harmoniously combines a clean, purposeful layout with luxurious elegance. Still a bit awkward to get in and out, but better than the famous gull-wings.

modified frame anyway.

Early this fall we received a telephone call from Mr. Merle Curry enquiring for "the gentleman in charge of road-testing." When connected, he told us he had a new 300SL Roadster which he was offering to us for a road-test. We don't ordinarily accept such offers, no matter how well meant, but we were willing to make an exception in this case. (Naturally!)

According to Mr. Curry, this is the first one delivered to a private owner in the United States, with the exception of Paul O'Shea's, which though "stock" from the technical point of view, is hardly the standard road version sold to the public. An appointment was made, and plans for this issue were happily changed. Two days later Mr. Curry arrived in New York, and after Studebaker-Packard's Mercedes-Benz Service Dept. had seen to the 3000 mile checkup, he handed his jewel over to us.

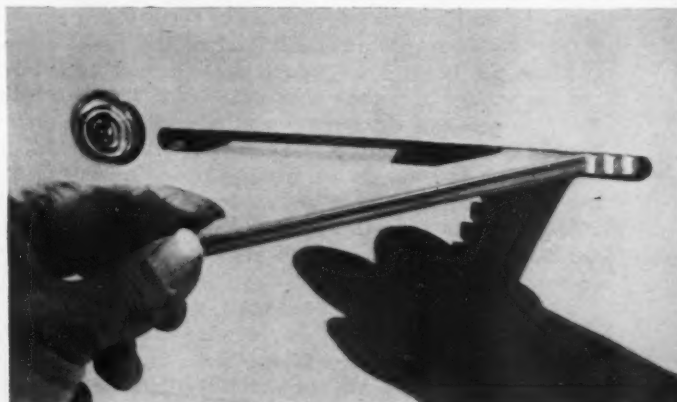
With this car, the Germans have again managed to mix successfully the gracefully sleek tautness of Italian lines with the hard purposefulness of contemporary German styling. There is no pigeon-hole for it except to call it the Mercedes SL school of design. Smoothness is evident everywhere. The trim features vary from the bold spears over the wheel cutouts and the frankly race-inspired outside mirror to the blade-thin, concealed door handles, where only the tiniest of serrated edges projects past the door contour, awaiting your finger tip pressure to bring the rest of the handle into reach. Pulling on this opens the normally hinged door, which, while not as exciting as the famous gull-wings, certainly enables you to make your entrance and exit more easily than before. The very wide door sill (it covers the tubular truss frame but thinly here) is itself covered with expensive-looking cowhide.

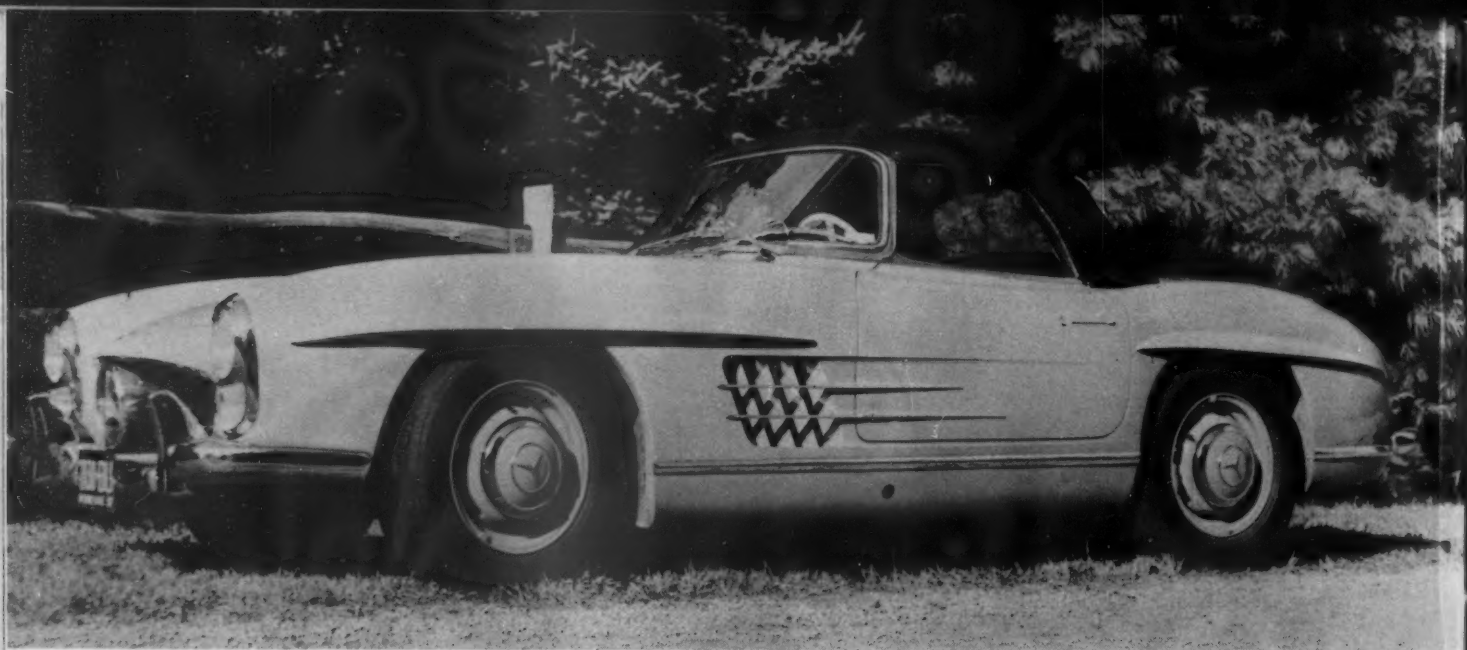
The bucket seats, though a bit upright, are well-shaped to provide excellent lateral support. Once settled in them, it was pleasant to see a hand brake lever mounted on the floor where it's easy to get at, yet arranged alongside the transmission bulge so it gets in no one's way.

Before even firing the engine up, it was thought best



Door handles: slim, attractive and typical of the attention to details.





A sleek beauty, the 300SL roadster is every bit as fast (and expensive) as it looks. Similar in many ways to the 190SL, the quick check identification points are the headlights, the air exit on the side, and up top, two power bulges on the hood.



The hand-operated top folds easily down into a well behind seats, then is covered neatly with metal lid.

to familiarize ourselves with the controls, which are numerous but sensibly arranged. To the left of the clutch pedal is a windshield wiper and washer foot control; it is supplemented by a dash-mounted knob for continuous operation of the two-speed wipers. Extending from the left side of the steering column is the now-usual Continental high-beam flasher; it will function whether or not the running lights or ignition are on. But again there was a surprise for us, for when you are really excited and press it *hard*, it blows the horn! Turn signals are operated by twisting the horn ring, a familiar and well-regarded M-B feature. New, though, was the arrangement whereby if you turn it further than usual, distant signaling lights are operated.

All minor instruments are grouped in one panel between the speedometer and the revcounter. Each one reads as a brightly colored vertical bar graph. Whether bar graphs are easier to read at a quick glance than circular dials is a moot point, though.

The small controls for headlights, wipers and the complex heater system (seven levers!) are fitted with knobs done in that peculiarly satisfying Teutonic fashion.

Also very satisfying are the well-placed arm rests on the

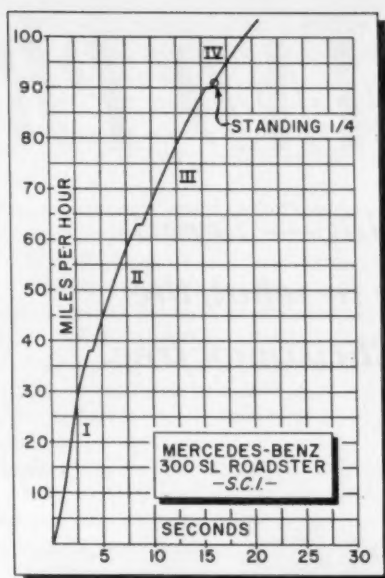
doors, which hinge open to reveal a storage space for various odds and ends. Oh yes, there's a lockable glove compartment too for papers, plus a generous shelf behind the seats—too small for kids though. The battery, well-covered, is reached through a panel in this shelf.

The first twist of the ignition key turned on the fuel pressure pump with its attendant whirring. A further twist, with the right foot off the accelerator, and the engine burst to life with a happy bark, then settled into a pleasant, restrained murmur. No more hot-start chokes and cold-start chokes; it's all automatic now, just like carburetor cars.

The Robert Bosch fuel injection used on the Mercs has two features that are unusual, not that F.I. itself is not unusual, too. One is that the fuel is injected directly into the combustion chamber rather than into the intake manifold. The other, which follows of necessity from the first, is that the fuel flow through the nozzles is intermittent. This requires a very precise metering pump which must, in a short interval of time, squirt exactly the right amount of fuel, neither too much nor too little, into each cylinder in turn. The quantity required is a function of rpm, throttle opening, and manifold pressure; the problem is not eased by the fact that these three are related to one another by no simple linear relationship. With a successful, flexible F.I. installation such as this, the driver enjoys benefits on increased power, greater economy, more instantaneous throttle response, faster cold starts, and, on very high performance engines, impressively smooth running at incredibly low rpm. Not to be overlooked is the possibility of further lowering of the hood line. On the 300SL credit for the latter must be shared with the 40° cant to port of the entire engine.

The compression ratio of each 300SL engine is stamped on the top of the cylinder head near the front. On this particular car it was marked 8.5/1, which is suitable for 92 octane gas. Future shipments to the US will be 9.5 to one because of the ready availability here of 100 octane (research method) fuel.

It is interesting to note that the difference in quoted



Although fitted suitcases are available, it's not because ordinary ones won't fit. Fuel tank was reshaped, and spare tire now lies beneath the floor of the trunk.

power rating is nowhere near in proportion to the compression ratio change, namely only 10 horsepower. In both cases they differ from the coupe, which was rated at 220 hp @ 6100 rpm with the racing cam. It is safe to assume that the racing cam is now standard, for the effect reported before is still there; "at 3600 rpm, all hell breaks loose." Indeed, in first gear on dry concrete it was possible to burn rubber quite ruthlessly right up to the change to second where another big black strip or two would appear if the throttle was again punched injudiciously. On the other hand, fourth gear could be used down to about 15 mph, though only above 30 mph did it feel really smooth at full throttle.

Heading for our test area, we got to feel the car out on all sorts of curves and surfaces — from New York City's variety of expressways to winding country lanes in Connecticut's suburbia. This new 300SL encompasses a racy blend of luxurious comfort, exuberant power, and especially nimble handling. It is a truly enjoyable car for pleasure driving, and enjoy ourselves we did, to our heart's

(Continued on page 55)

MERCEDES-BENZ 300SL ROADSTER

PERFORMANCE

TOP SPEED:

Two-way average 123½ mph (see text)
Fastest one-way run 125 mph

ACCELERATION:

From zero to	Drive range
30 mph	2.7 sec
40 mph	4.3
50 mph	5.9
60 mph	7.8
70 mph	10.6
80 mph	12.8
90 mph	15.4
100 mph	19.2
Standing quarter	16.3
Speed at end of quarter	91 mph

SPEED RANGES IN GEARS:

Corresponding to 1500-6000 rpm, for full throttle work:

Gear	Speed Range (mph)
I	9-38
II	16-63
III	22-90
IV	31-124 (6600 rpm, giving 136 mph, is permissible in IVth)

SPEEDOMETER CORRECTION:

Indicated	Actual
30	29
40	38½
50	48
60	58
70	67

FUEL CONSUMPTION:

Hard driving 13.0 mpg
Average driving (under 60 mph) 21.3 mpg

BRAKING EFFICIENCY:

(10 successive emergency stops from 60 mph, just short of locking wheels):

Stop	Distance (ft)
1st stop	81
2nd	77
3rd	74
4th	75
5th	70
6th	70
7th	72
8th	75
9th	70
10th	70

POWER UNIT:

SPECIFICATIONS

Type	Six in-line
Valve Arrangement	Single ohc, parallel valves
Bore & Stroke	3.35 x 3.46 in (85 x 88 mm)
Stroke/Bore Ratio	1.04/1
Displacement	183 cu in (2996 cc)
Compression Ratio	9.5/1 for USA (8.5/1 on test car)
Carburetion by	Bosch timed fuel injection
Max. Power	250 bhp @ 6200 rpm (240 bhp on test car)
Max. Torque	228 lb-ft @ 5000 rpm (unknown on test car)
Idle Speed	750 rpm

DRIVE TRAIN:

Transmission ratios I	3.34
II	1.97
III	1.39
IV	1.00
Final drive ratio (test car)	3.89 (hypoid)
Other available final drive ratios	3.25, 3.42, 3.64, 4.11
Axle torque taken by	Radius rods

CHASSIS:

Wheelbase	94½ in
Front Tread	54½ in
Rear Tread	56½ in
Suspension, front	Independent, unequal wishbones, coil springs, anti-roll bar
Suspension, rear	Independent, low pivot point swing axles, two coil springs to frame plus third one between levers
Shock absorbers	Tabular hydraulic
Steering type	BD rotary ball-joint, self-adjusting, with steering damper
Steering wheel turns L to L	3.0
Turning diameter	30 ft
Brake type	Ate T50/12 vacuum-assist, radially sprung Alfin drums
Brake lining area	257 sq in
Tire size	6.70 x 15 (6.50 x 15 for racing)
Rim size	5½K x 15

GENERAL:

Length	180 in
Width	70½ in
Height	51 in
Ground clearance	5 in
Weight, test car, full tank	3100 lbs
Weight distribution, F/R	49/51
Weight distribution, F/R, with driver	48/52
Fuel capacity	26.4 U.S. gallons

RATING FACTORS:

Bhp per cu in	1.37 (1.31 on test car)
Bhp per sq in piston area	4.73 (4.55 on test car)
Torque lb-ft per cu in	1.25
Pounds per bhp—test car	12.9
Piston speed @ 60 mph	1670 fpm
Piston speed @ max bhp	3580 fpm
Brake lining area (test car)	168 sq in/ton
Speed in IVth gear @ 1000 rpm	20.6 mph

TABLE TOP GRAND PRIX

Others can have their electric trains — here is SCI's nomination for the ultimate in what the enthusiast would like under the Christmas tree.

by Bob Coogan

A pair of scale Maseratis race the #2 course. Each car has separate throttle control. Unless slowed for corners, cars will leave the track in startlingly realistic manner.



WHILE browsing through Polk's Hobby Shop the other day, I happened to see a figure-eight shaped road-course laid out on a table. On inquiring, I was blandly told that the course was for "racing little cars." I then asked, "What kind of cars?" "How big are they?" "Can they really be raced?" "Do they look like real cars?" "Can I see them now?"

The salesman, to whom I addressed these questions, was by this time cowering behind a stack of A-4 Mechano sets. He pointed to the rear of the store and just managed to choke out the words, "Mr. Rose!" I released my grip on his thorax, and moved catlike toward the back of the store, where I duly found Mr. Rose. After repeating all the aforementioned questions, Mr. Rose patted me on my bald spot and told me to get up off my knees, and that he would show me the whole affair, and maybe, if I were a good boy, he'd let me play with them for a while.

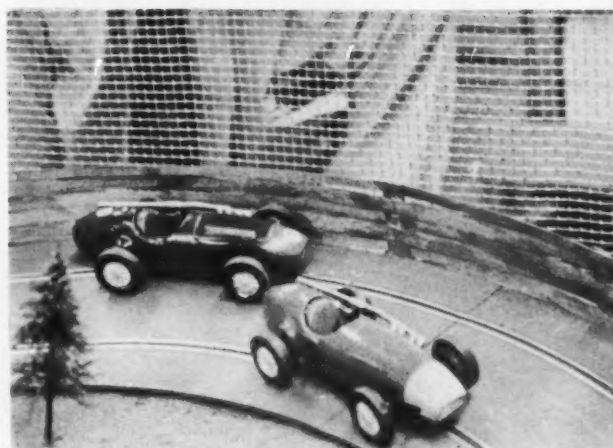
The cars turned out to be wonderful scale models of Maseratis and Ferraris that run two at a time on a variety of courses, and must be controlled either by two people or one who is extremely ambidextrous. It really lends itself to competition.

The course is made of semi-flexible plastic tile-like slabs that have two grooves, one for each car. Each groove is lined with two strips of metal for the electrical pick-up. The top of these metal strips is flush with the road-bed to facilitate spinning and other realistic hi-jinks. The amazing thing about the cars is the guide wheel, which is hidden away just about where the gearbox is found on a real car. The guide wheel runs within a free-turning horizontal ring allowing the car to spin or drift, and the car is not coupled to the track in any way. It merely serves to pick up the current for the nylon-housed rear-mounted motor, and acts as a pivot point for drifts and slides . . . unless you get too lead-footed with the power.

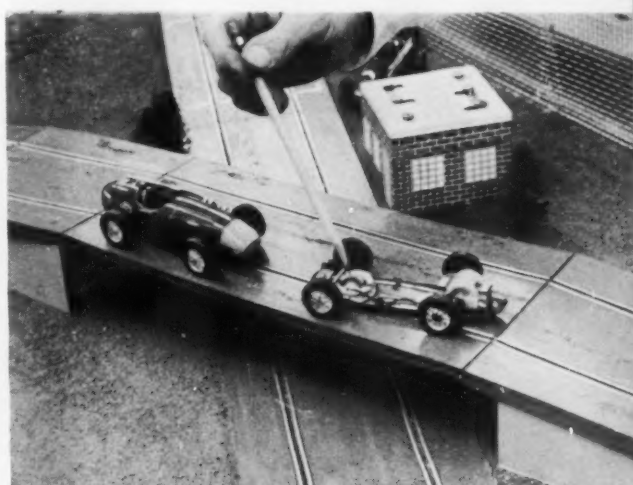
The cars race around at unbelievable scale speeds. The speed is controlled by two buttons, one for each car, that are blipped off and on to slow the cars for the corners and accelerate around them and down the straights. This is necessary, for if you hold the button full-on the car will go straight off the course. If you hold the button on too far into the corner, the car will start around and then do a big hairy spin. The button must be feathered properly so that the car will take the corner in a beautiful power slide. Another point to watch is coming out of the corners, because a constant application of power will cause over-run, and result in a spin. In order to win a race, one must exercise great skill and discretion in the use of the throttle-button, which also uses the drag of the motor as a brake.

SCI's Editor, John Christy, hove on the scene about the time I was discovering all these intriguing aspects of table-top GP. His reaction was immediate, the first question being: "Can you make it go quicker?" A few questions in the proper places produced a resounding yea. The cars are set for 12 volts but they're tested for 18, giving a safety factor of six volts that can be shaved as far as one has courage to go. An electrified nitro so to speak. Another item bearing improvement is tires — one can groove the hard rubber and inlay rubber bands which are much softer and "stickier," to take any extra power. At this point Tech Editor Wilder discovered that ballast weights could be moved around for changes in weight distribution. In short, the possibilities are endless . . . and to say more would be giving away the speed secrets of the already-enlightened.

The course on which we tested these cars was a figure-eight with slightly-banked turns and a cross-over bridge. The cross-over in the course makes a lap the same distance for both cars, whereas, on an oval course, the inside car would have a shorter distance to go. Even the figure-eight course needs a little handicapping, as the car on the inside before the bridge is at a slight disadvantage, owing to the fact that



Car on outside during curves has advantage as fence holds it on the course. White-nosed Maserati, though still in lead, is about to spin



Twelve volt electric motor propells car and is brake when power is turned off. SCI test drivers kept cars on track at 100 scale mph.

SCALEXTRIC GRAND PRIX MASERATI

Length	5.9 in.
Width	1.2 in.
Height, without driver	1.4 in.
Height, with driver	2.0 in.
Ground clearance	0.1 in.
Weight, dry	5.0 oz.
Weight, as tested	5.2 oz.
Wheelbase	3.2 in.
Front tread	2.1 in.
Rear tread	2.3 in.
Front suspension	Center pivot axle
Rear suspension	Unsprung
Final drive	Right rear wheel only

the outside car in either turn has a fence to hold it on the course so it can negotiate the turn at full throttle. The inside car cannot, and arrives at the bridge upgrade at a slightly slower speed. The figure-eight course, (set #2), is approximately two-hundred inches to the lap, with overall dimensions of seven feet three inches by two feet five inches.

I had the good fortune to be able to try two types of chassis on this course, both with scaled-down Maserati bodies. The first type has a locked rear-end, no longer in production, with very hard rubber driving wheels. The second and newer-type chassis has only the right-rear wheel driving, and

(Continued on page 58)



Phil Hill during his final pit stop. He won in a 3.8 Ferrari flown in from Europe especially for the race.

Elkhart Lake

THE MIDWEST 500:

by Denise McCluggage

GRASS has worked its lovely camouflage at Road America, pleasantly proving that it isn't necessary to wade ankle-deep in powdered dust to go racing. In fact Elkhart Lake's road racing venue is a fine looking plant. Bright flags fly from the white-painted pagoda, smoke curls up between the trees from the refreshment tent and there's a touch of Europe about it all.

The weather that greeted the September 7-8 S.C.C.A. National, which including the running of the first sports car 500-miler in the country, was of Chamber of Commerce calibre, too. Puffs of clouds floated in a blue and gold sky, the sun took the edge off the tang of fall and everything pointed to a wonderful week end.

There was promise of a battle to be done of the four-mile bent-boot of a course, too. Maserati, Ferrari, Jaguar, Mercedes-Benz and Porsche were all represented by their top exponents in this country. Walt Hansgen, who had such a variety of fortune on the Road America course (he wrote off two D Jags in one week end last year then won the June meet this season in one), was riding number one of the three-strong Briggs Cunningham team of D-Jags. Paul O'Shea, who must see three-pointed stars in his sleep, was teamed with Dr. Dick Thompson in George E. Tilp's Mercedes-Benz 300SL Roadster, a silver beauty that was really never meant for the tough "modified" competition it has faced. Ed Crawford, he of the innocent wide eyes and the weighted right foot, was in the potent blue Porsche 550RS.

And then came the marques from Modena. Or did they. On practice day Carroll Shelby was waiting for the John Edgar van bringing him a choice of a 4.5 or a three litre Maserati. And Phil Hill, delaying a return to Europe for a few days to drive at the scene of his exciting triumph two years ago in a Ferrari Monza over Sherwood Johnston in a D-type, was awaiting the arrival from Italy of a 3.8 Ferrari. In the interim, he practiced in a weary blue 3.5.

By Saturday the red machinery had all arrived. Carroll selected the three litre, saving the 4.5 for the faster Bridgehampton course (and also incidentally drawing a 45 second head start on the Class C cars because this was to be a handicap race as well as an overall bout.)

Saturday there were two races for the production cars and the H sports category. The first, an 80 mile affair, was headed from flag to flag by Don Wester in a Porsche Carrera, the only one in the race. He was hard pushed at the end, though, by Ed Hugus who came up from fourteenth starting spot to win his class in an Alfa Romeo Veloce. Bruce Townsend won the H sports category in a TXP.

The second race was meant to be 120 miles but somehow the checker was lowered a lap early. No one cared, though, because the race had really ended on the 22nd lap when



Ed Crawford dashes from his Porsche RS during a fuel stop. He finished first in Class F, first in Index and third overall.

Jim Jeffords, steaming like a caliope, had retired his front-running Corvette with a broken radiator. Dr. Dick Thompson won. The Washington D. C. dentist had led anyway until his pit stop on the 17th lap. Then Jeffords' stop two laps later was faster than his and left Thompson with a deficit of some eight seconds until the radiator problem sidelined the hard-driving Jeffords.

In the second race, Lt. Col. Bob Kuhn pushed his A.C. Bristol into third overall for a Class E trophy. David F. Causey was first in class C with a Jaguar XK140MC. Trant Jarman won Class D with an Austin Healey.

The 500 mile race began at ten Sunday morning. There was a record crowd of some 30,000 people crawling over the hills to watch the 51 cars that started and the 33 that finished. This is the way the cars were flagged off: Class A and B first, then twenty seconds later Class E. Then twenty-five seconds later Class G. Another twenty seconds and Class D went. Then twenty-five seconds more and Class F and finally, after twenty more seconds of bit-chomping, the Class C cars.

It was a few laps before things sorted themselves out and

(Continued on page 59)



Last minute pit check is given to the entries. A total of fifty five entered, but only thirty three finished.

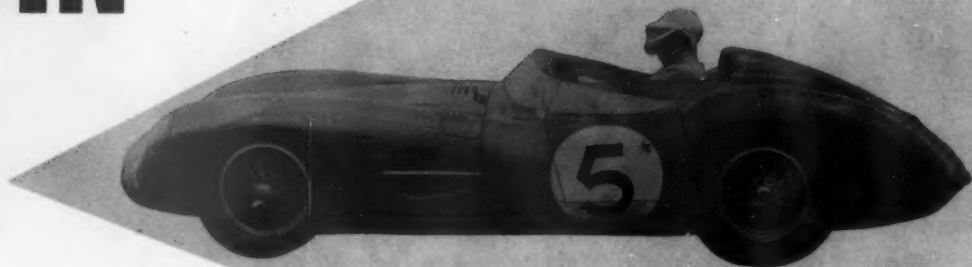
Carroll Shelby leaps from the three liter Maserati during the 95th lap of the 125 lap race while pit man checks the fuel.



DECEMBER '57

SPORTS CARS ILLUSTRATED

ASTON MARTIN DBRI 300



SCI Technical Report:

by Karl Ludvigsen



After hotting up the production engine as much as they could, the factory did what others can't, and cast themselves a new and sturdier crankcase.

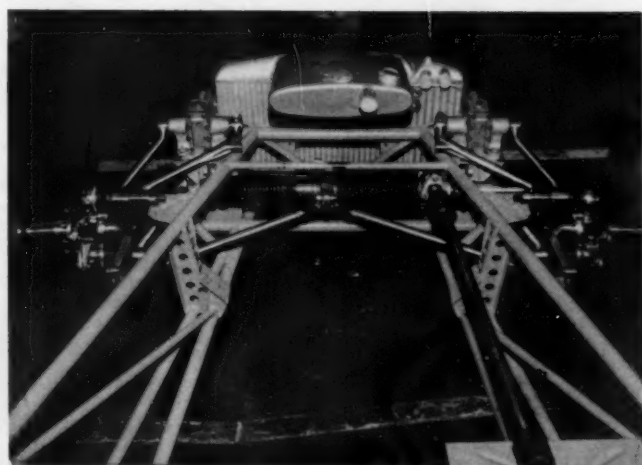
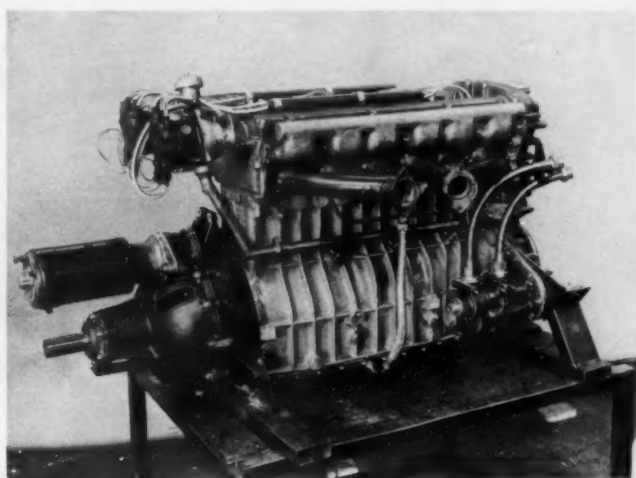
ENGLISH cars and a gent from Huddersfield named David Brown attained a long-sought goal. Since the war this balding, bespectacled industrialist has spent hundreds of thousands of pounds on machinery to perpetuate the name "Aston Martin", and on May 26 he had the pleasure of watching the latest Aston race car trample the cream of the Italian sports machines at one of the world's most trying road courses: the Nürburgring. His drivers were the impeccably fast Tony Brooks and newcomer Noel Cunningham-Reid, young men who had been groomed for Aston's racing program by Team Manager Reg Parnell and also by his predecessor John Wyer, now General Manager for David Brown Automobiles.

It was an all-English victory; but it was not important for that reason alone. Since the war, Jaguars have dominated fast courses like Le Mans and Rheims. Britain's own short sprint and club races are the province of home-grown iron like Lister and Tojeiro, while Cooper and Lotus must be reckoned with in any class under two liters. Yet through it all there's been no English car that challenged the eminence of German and Italian cars in the bulk of the world's classic sports car races: the 'Ring, the Mille Miglia, Targa Florio, once the Tourist Trophy and Mexican Road Race, and now Sebring.

These and similar events can only be contested by well-balanced all-round sports-racing cars, on the order of the 300SLR Mercedes or 300S Maserati: not too big and not too small, with no more power than can be used and excellent suspension to keep it all on the road. With the possible exception of some HWM sports cars, Aston Martin

Frontal area is reasonable for a 3 liter machine, drag coefficient would appear to be especially low.

Twin distributors on tail end of twin cams should ensure adequate spark; large economy size pumps should do likewise with the oil pressure.



Upper trailing arm (or wishbone) operates piston-type shock absorber directly; lower ones are each attached to transverse torsion bars running full width of frame and held in special trunnions. All joints of the rack and pinion steering are protected by accordion-type rubber seals.



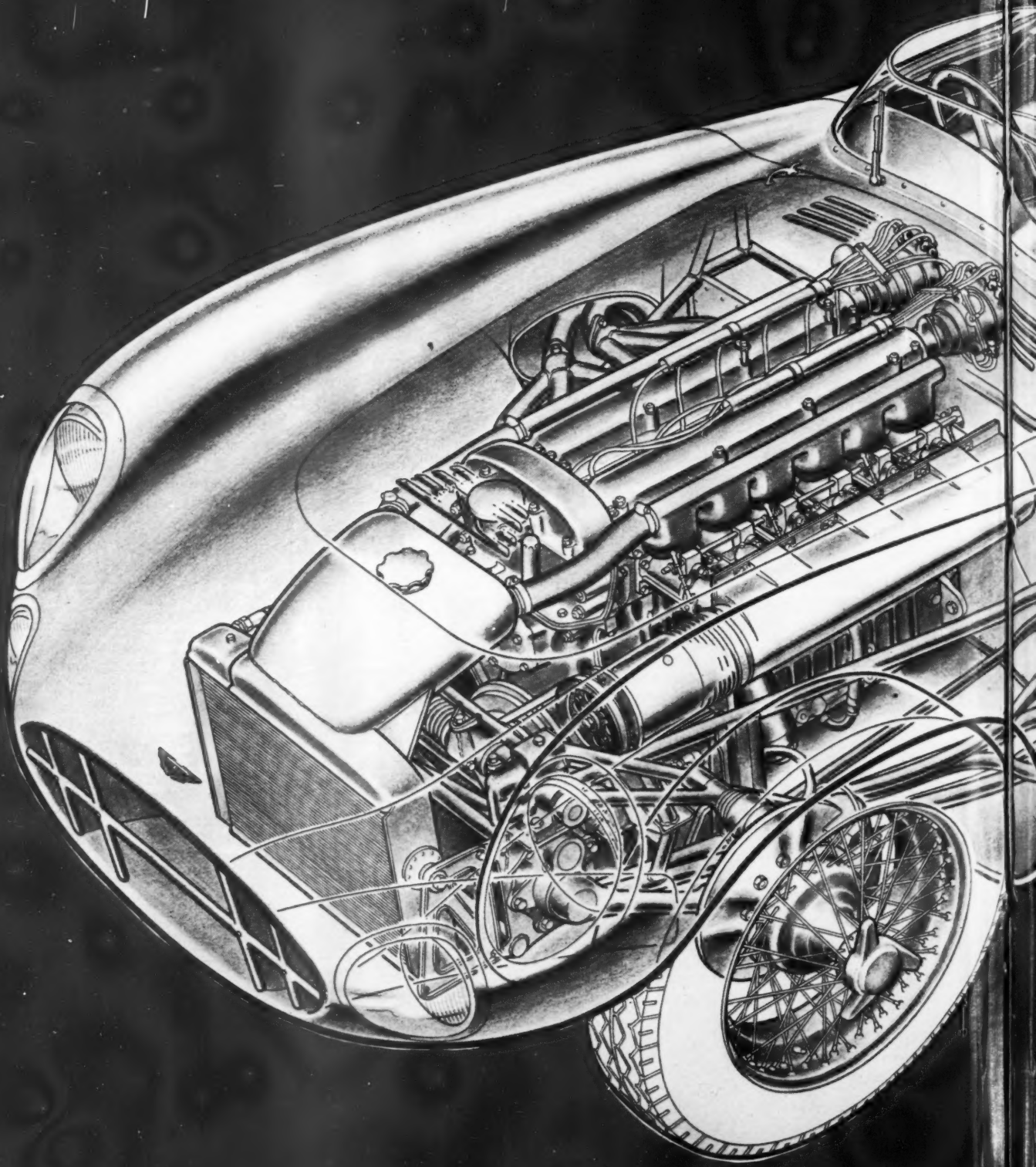
was the only English outfit to pursue this goal sincerely. They were always just on the verge, and whether or not they follow through, it must be recorded that they made the grade in May. And the car, the DBR1/300, is a nice piece of design, drawing heavily from the past and pointing significantly to the future.

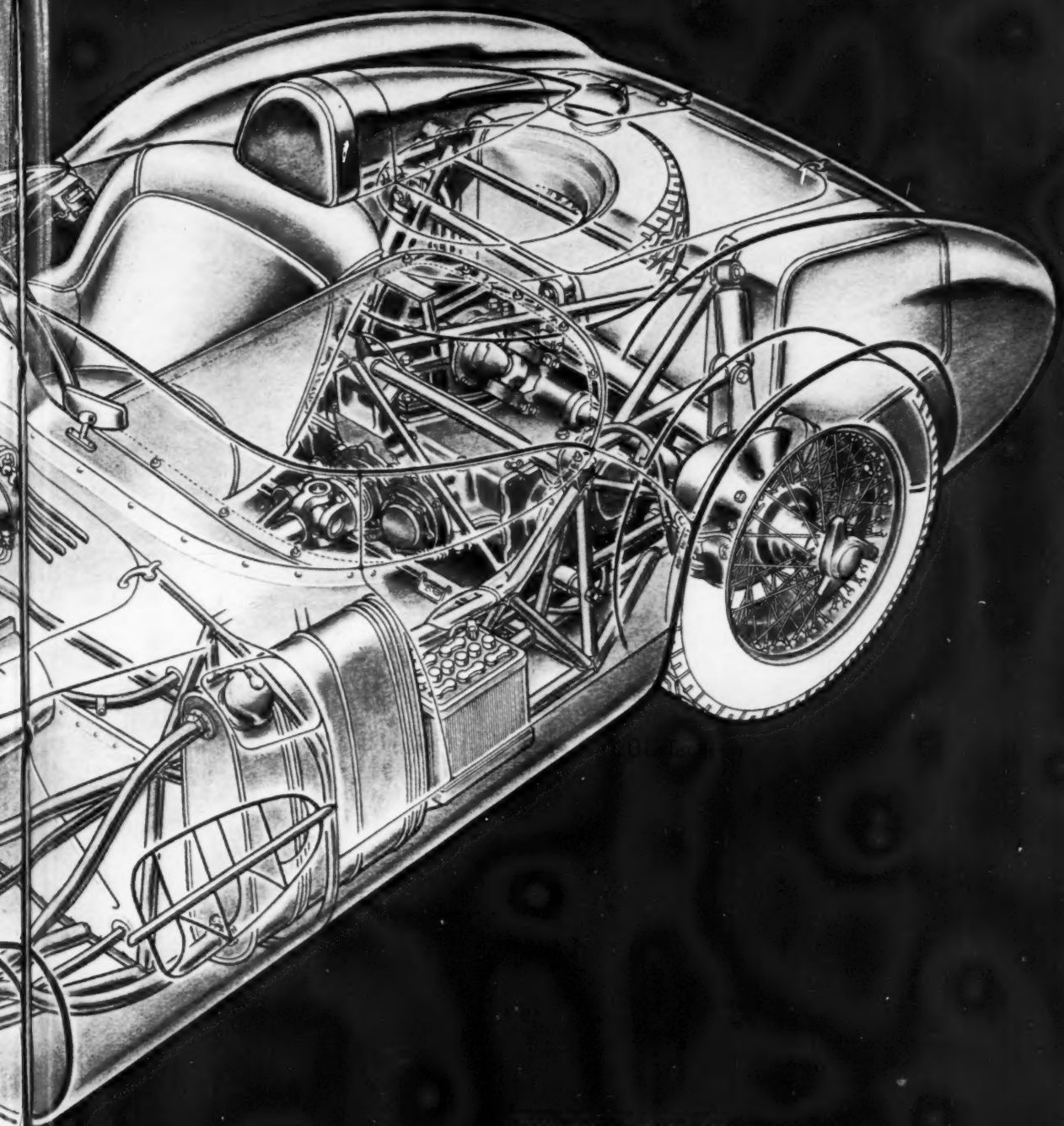
By the year 1948 the David Brown Companies (builders of Cropmaster and Trackmaster tractors, transmissions, axles, gears and gear cutters, steel castings, and once the Lucas Valveless and Dodson cars) owned the assets of Aston Martin and Lagonda. The latter boasted little more than a respected name and a promising prototype engine designed in 1945 by W. O. Bentley, famed for his creations during the thirties. This twin-cam 2½ liter six became the heart of the best postwar Astons, and is still recognizably the base of the RI's engine. Much heartache was endured before this latest version was worked out, however, and it does seem possible that too much reliance was placed in a basic design that was intended primarily for touring and which was produced by a mind that may have been past its prime. Ten years of development are justified only by a truly exceptional design, which, for example, the XK Jaguar can claim to be.

Features of Bentley's engine that remain in the Aston RI are the twin overhead-cam layout, valve angle and actuation, and chain cam drive. Early racing versions and current production Astons have cast-iron heads with one plug per cylinder and a single water outlet between the cam cases. This is just as W. O. laid it out. Around Le Mans time in 1954, the head was worked over in detail to allow casting in aluminum alloy and double the number of spark plugs, to be used in the competition cars only.

As such units go, the head is narrow and has very short built-in ports. It's deep, however, and a lot of water contacts the plugs, valve seats and valve guides. All the guides themselves are wet, pressed in place and partially retained by the inner-coil valve springs. Valve operation is very much like that of the Jaguar, with cup-type tappets shrouding the coils, but clearance adjustment is by selective assembly instead of shims. Valves are inclined at 30 degrees either side of the cylinder center line, giving a shallow combustion chamber and minimizing shrouding of the open valve. A thoughtful feature for production and maintenance is the use of a common horizontal plane for the

DECEMBER '37





ASTON MARTIN DBR1/300

POWER UNIT:

Type	Six cylinder in-line
Valve Arrangement	DOHC, 60° included angle
Bore & Stroke	3.27 x 3.54 ins. (83 x 90mm)
Stroke/Bore Ratio	1.09:1
Displacement	178 cu. ins. (2922 cc)
Compression Ratio	9.1:1
Carburetion by	3 Weber 45 DCO
Max. bhp @ rpm	250 @ 5300
Piston Area	50.4 sq. ins.
Ignition by	Two Lucas distributors, two K.L.G. plugs per cyl.
Clutch	Borg & Beck multiple dry plate
Transmission	David Brown, 5 speed, dog clutch selection, in unit with ZF differential

DRIVE TRAIN:

Axle torque taken by Chassis

CHASSIS:

Wheelbase 90 ins.

Front Tread	51 ins.
Rear Tread	51 ins.
Suspension, front	Parallel trailing arm, transverse torsion bars
Suspension, rear	de Dion, longitudinal torsion bars
Shock absorbers	Armstrong: lever-type front, tubular rear
Steering type	Rack and pinion, two-piece track rod
Brake type	Girling disc, Ferodo pads
Brake lining area	Rubbed disc area; approx. 500 sq. in.
Wheels	Borrani wire

GENERAL:

Weight, dry	1765 lbs.
Weight distribution, F/R	52/48

RATING FACTORS:

Bhp per cu. in.	1.40
Bhp per sq. in. piston area	4.96
Pounds per bhp-dry	7.08
Piston speed @ max. bhp	3720 fpm
Brake lining area per ton	562 sq. ins.

DECEMBER '57

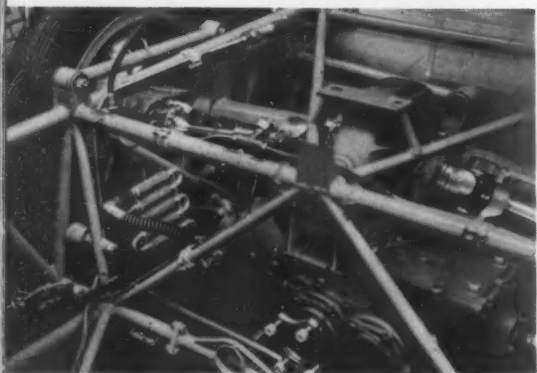
Only the minimum number of Protrusions and holes mar the DBR's smooth shape.



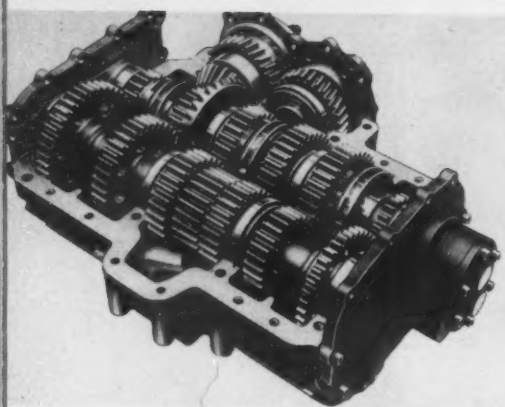
parting lines of cam bearing caps and housings on both sides. This simplifies head machining and assembly.

Unique for a six, in our book, is the water outlet system in the redesigned head. A neat manifold along each side collects hot water from six oblong ports just above the intake and exhaust openings and ducts the flow forward into a tee, from which one short hose feeds into the header tank. They tried two separate hoses to the header, but that wasn't the answer.

Once pioneers in the use of Solex twin-throat side draft carbs, Astons are now back to the standard fixtures: Webers. Three 45 mm double-bodied units are carried a short distance from the head by fabricated piping. Cool air comes from the low snout via a flexible pipe and an alloy



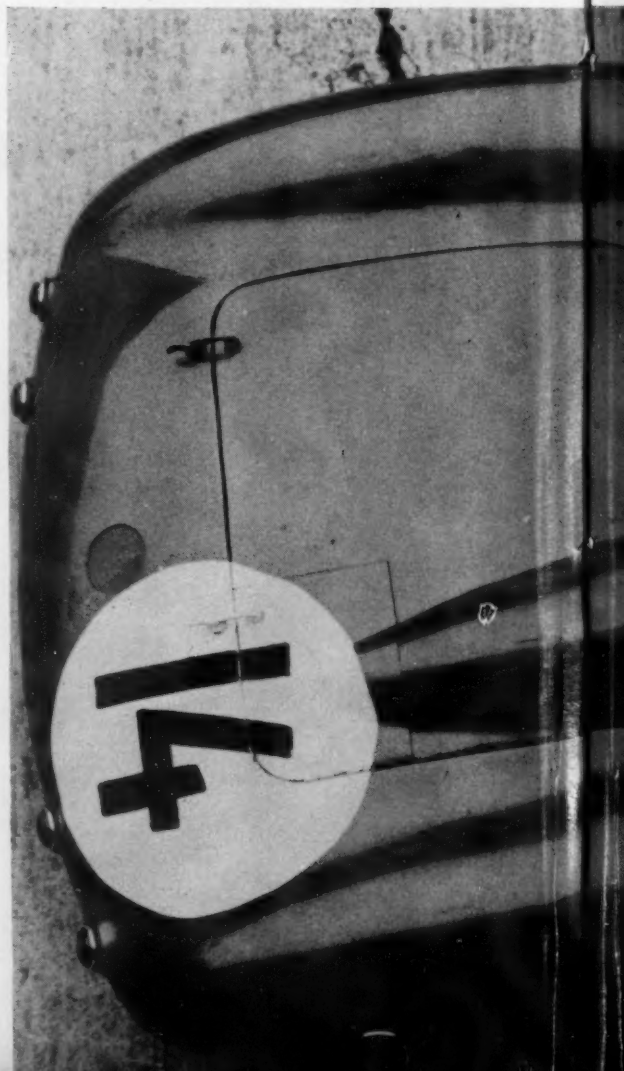
To keep oil temperatures low the hard working differential-gearbox has its own radiator as well as an oil pump. The short panhard rod and the two right side radius rods may be seen in the background.



The works of the gearbox are viewed here from the rear. Spur gears which offset the pinion shaft also permit ratio changes in the final drive to be made without tearing the whole shebang apart.



The very neat cockpit layout indicates the thoroughness of the car's planning. All the electrics are mounted on panels for instant access. The shift lever has a proper gate in the vintage tradition.



balance box. Exhausting is equally familiar, with two short, separate manifolds and twin pipes coming down through the right fender and under the door. Three big holes chopped down there look hairy, but draw heat away from the nearby driver.

To set off its twelve plugs, the alloy head was laid out to include two Lucas distributors driven from the back ends of the cams. Most of these cylinder head refinements were carried out on the DB3S series Astons during 1954 and 1955. In 1956 a lot of research was funneled into the cast iron block, which was the main anchor that W. O. Bentley had hung on the Astons. It was too heavy and too high; it didn't adapt readily to dry sump lubrication or direct fuel injection.

Okay, so we'll make it in light alloy, they said. But it wasn't that easy. Often compared to the Offy bottom end, the ex-Lagonda block-crankcase casting was barrel-type, and three of the four mains were supported by split bearing carriers that are bolted together around the main journals before the whole assembly is threaded in from the clutch end of the crankcase. In the Offy, though, each carrier bolts firmly to eight studs in the case, while the Bentley interpretation demands that the machined exterior of each circular carrier mate perfectly with corresponding interior bores. Set screws are used only to locate the carriers.

Using alloy carriers in an iron block, as in current production Astons, high temperatures and hard work would

cause the fit to tighten, if anything. This didn't hold when the block was alloy too, unlike the Meyer-Drake version, and satisfactory stiffness and stability couldn't be obtained. Hence a new block design for the DBR1/300. A sage decreed that the old 60 degree head, described above, should fit. (A new head was on the way but progressing slowly. More on that later.)

Main difference in the R1 block, then, is the use of two-bolt caps to support the main bearings. The crankcase sides come well down past the crank center line—virtually as far as did the older block—so the deep main caps can get plenty of side support. A deeply "waffled" exterior makes the new block look grotesquely different, but it actually resembles the old one very much in general layout. This was, of course, dictated by adaptability to the older head, and it was decided to use the old crankshaft forgings as well. Since old W.O.'s cylinder spacing was quite close, both these requirements blocked the installation of seven instead of four main bearings—a step that might have lengthened the life span of this engine. As it is, the mains are 2½ inches in diameter and very wide, while the two inch rod journals are nearly the same width. Just enough room is left for thin connecting webs and three big counterweights. It's plenty husky as long as the boys refrain from revolving it more than 6300 times per minute. But then the figure used to be 6000.

(Continued on page 60)

The Nürburgring win of this car opened Continental eyes. They'd never thought that the British could win a really tough sports car race.



Bonneville Nationals

THEIR FASTEST YEAR:

*...even roadsters turned 200 regularly,
and anything less than 130 was slow.*



Bill Scace's Porsche RS was driven to the salt from Chicago by Bob Hirsch. ABOVE: SCI's John Christy gets word from starter Bob Higbee before qualifying run of 130.6. Hirsch took two-way record, 135.772 and Scace, one-way run at 140.6.

SCI Staff Report

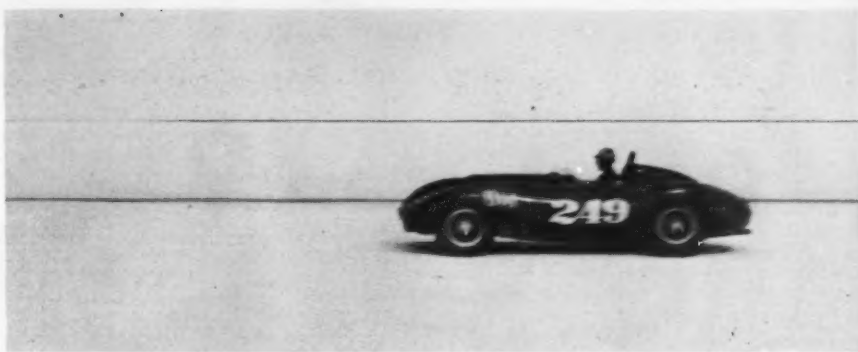
THE adventures and exploits that enrich seven solid days each year during the Bonneville National Speed Trials seem to be largely the effects of a single cause. That cause is the unique spirit you find among this group of enthusiasts. It is not sentimentality but mere straight reporting when we say that this spirit includes genuineness, ingenuity, diligence, a wry form of off-beat humor, straightforwardness, human warmth, cooperation and spontaneous, unselfconscious sportsmanship. There's a spirit of grappling with "impossible" challenges and there's a spirit of wholesome, humorous outrageousness that prompts people to go 200 mph in a Model T roadster or to name a car to be proud of the "Nothing Special." By the end of the week a large number of the cars running are doing so with pistons or clutches or some vital part that has been loaned by a fellow competitor, often in the same competing class. It's impossible to put this utopian spirit into precise words but

a great many people sense it and comment on it. It's the best thing about Bonneville. The machines and speeds are its worthy by-products.

This year's meet was marked by one of the biggest turn-outs in several years. Entries totalled about 200, of which about 30 were in the sports car category, and the spectating crowd was tremendous. The variety of equipment was unusually rich and new records were set in 19 classes.

The soggy weather that had kept the desert flora blooming and had almost thoroughly sabotaged the just-completed BMC record runs threatened to ruin the Bonneville Nationals. A good 70 cars lined up for tech inspection across from the Western and Wendover Motels the day before the meet was to begin. They were processed in blazing sunshine and then, as dusk fell, a cloudburst struck and soaked the salt. It could have been worse, because the salt was at least useable the next day and became progressively drier through-

Bob Drake barrels Frank Arciero's 4.9 Ferrari through the traps for a short-lived record of 176.913. While qualifying the best he could get was 170 until the hood blew off, at which point he picked up an additional five miles an hour. Reason was that pressure under hood from grille created vacuum at carb pickup.



Drake's record fell to Barnes-Larsen-Dauphin car which turned 178.068 av. with 390-inch Chrysler.

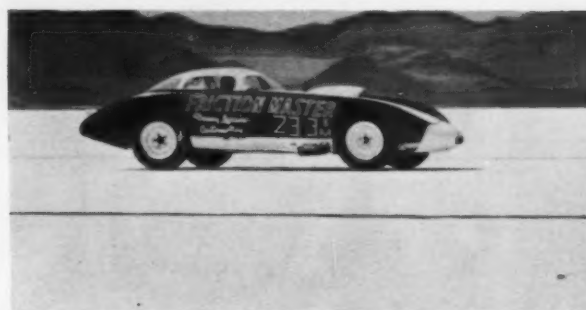
out the week. So the cars went, not as fast as they would have on a bone-dry surface, but still at speeds that set new highs, often by whopping margins.

The first entry to arrive at Wendover was the famous Shadoff Special streamliner, holder of the FIA International Class C record at 236.36 mph. This year's target was the FIA Class B record of 268.9 set in 1938 by Caracciola in a Mercedes, and owner-builder Malcolm Hooper had installed a 467 cu. in. injected Chrysler to do the job. He had also sold the car to sportsman Fred Lavell of Birmingham, Mich., and the plan was to run immediately after Moss' MG, while USAC-FIA timing facilities were available. The weather that delayed the MG runs to the eleventh hour also blasted these hopes. But it did give Moss and Syd Enever (MG's chief engineer and himself a product of the practical school) an opportunity to meet some native practical engineers and examine their handiwork.

Their reactions were interesting. Both Britains were fascinated by the machine, frankly admired the excellence of its design and workmanship and the rapport between them and the Hooper crew was what you would expect, given mutual interests and mutual respect. Enever pointed out with some surprise that the four-year-old car's chassis layout was strikingly similar to that of his newest MG record car. Assured that all our one-off machines are not so advanced, Enever replied, "Don't worry. When they start going fast enough the others will get advanced too. They'll have to."

Hooper delivered his car to its new owner and headed back to the coast, leaving matters of mechanical preparation in the hands of Don Clark of C-T Automotive, builders of the streamliner's big new engine. But before Lavell had a chance to guide his new possession down the course, urgent business pulled him east. Clark, finding himself all tuned up with no place to go, decided to go ahead and drive the car in the Nationals although he had never tooled anything remotely as fast. He very calmly made a qualifying run of 250.87, then turned an official two-way 248.281 — almost 32 mph faster than the existing SCTA D Streamliner record. The car would have gone much faster but it was beginning to behave squirrely at this speed, apparently because an inch and a half toe-in developed in the de Dion-sprung rear wheels. America's fastest single-engine car will be one to watch next year.

The fastest of them all continues to be the Kenz-Leslie streamliner, out of Denver, and powered by a trio of 304 cu. in. Edelbrock-equipped flathead Fords. The highest speed ever clocked by a U.S.-built car until this year was set by Willie Young in this machine in 1953, at a two-way average of 255.411 mph. Since then Roy Leslie has manned the controls, but mechanical failures have consistently kept him from making a two-way run at new-record speed or even at a speed that would qualify him for membership in the 200 MPH Club, although he's topped 200 one-way many, many times. But this year Bill Kenz outdid himself in pre-



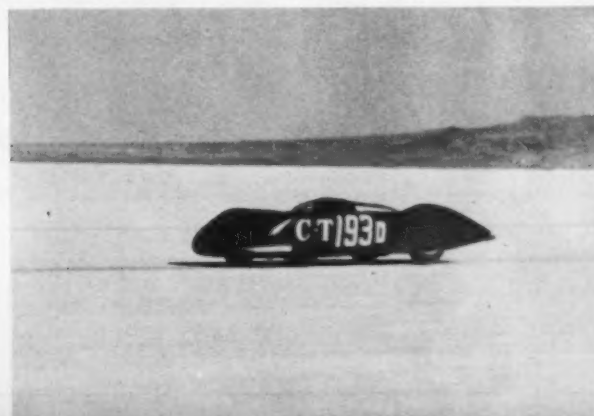
Stanford Bros. Porsche 1600 took Class A; 107.932.



Chrysler-powered E&D Special set C-M record; 138.31.

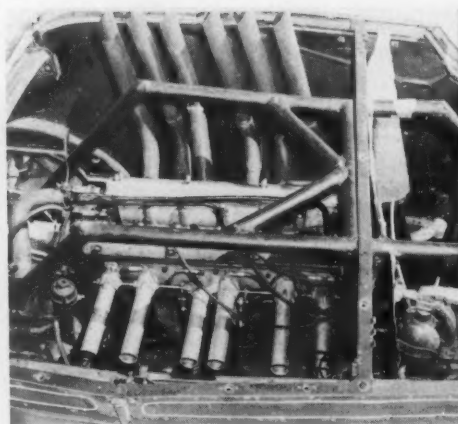


Former Shadoff Spl. made new SCTA record; 248.281.

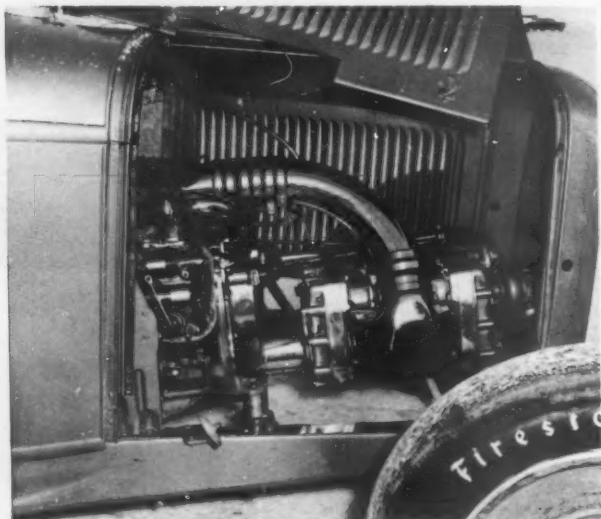




Ak Miller's Caballo blew a piston before he could attack the D-modified Sports Car record. It turned 177.42.



Coventry would probably look on this with mixed emotions. Veteran competition coupe took class A record at 125.596 with Jaguar engine using five pistons to bring displacement under 183 inches. #6 cylinder was blanked off but piston remained.



GMC-blown DeSoto V-8-powered stock-bodied '32 Ford, owned by Sughrue, Edwards, Smith made 191.55 D-Rdstr record. Best one-way time of "Highboy": 195-plus!

paring the machine that his childhood friend and long-time business partner would drive. It ran daily with the regularity of an express train, turned a top of 270.473 mph and set a new all-time high SCTA record of 266.204. This big car is immaculate in every detail and Leslie reports it's solid, steady and vibrationless when going flat out. But Kenz feels that he's squeezed the ultimate in urge from the flatheads. We'll see what he returns with in '58.

Sports car classes at the Nationals approach the FIA classes more closely each year. This year they were:

O Productionunder 91 cu. in.
A Production92 to 170 cu. in.
B Production171 to 305 cu. in.
C U.S. Productionunder 371 cu. in.
OM Modifiedunder 91 cu. in.
AM Modified92 to 183 cu. in.
BM Modified184 to 305 cu. in.
CM ModifiedU.S. sports cars with 368 to 425 cu. in.
DM Modified306 to 488 cu. in.



LEFT, TOP: Simpson's modified C-Jag ran like a watch, turning 155.97. **LEFT, BOTTOM:** Dees' 220S started out in high 90's, later turned 103.92. **BELOW:** Hirsch and crew member try to rectify fuel problem that kept Scace's 300SL under 140.



The fastest sports car of all, the fastest ever to run on the salt on pump gas, proved to be the Barnes-Larsen-Dauphin Sorrel-bodied, Allard-based, Chrysler-engined, gull-wing door coupe. Two injected engines were run: a 303 cu. in. for BM Class and a 390 cu. in. for DM. The best speed with the smaller engine was 167.83 mph, which was not fast enough for the competition. But with the big mill the streamlined coupe hurtled through the traps at 183.76 and set the DM record at 178.068, a healthy improvement over this car's '56 record of 164.312.

The BM record was carried off by a surprise post-entry, popular road-racing pilot Bob Drake in Frank Arciero's ex-Paravanno 4.9 liter, 299 cu. in. Ferrari two-seater. Drake was on the salt the first morning of the meet, red-eyed from an all-night haul up from Los Angeles. The screaming exhaust note of the purebred V12 was an exciting contrast to the throaty bellow of brawny Detroit V8's as Drake made several runs in the high 160's but could coax the revs no higher. Then, in the middle of a flat-out run the car's hood blew off — with no injury to the startled driver — and on his next run Drake added five mph to his speed! He pulled out in mid-week in time to show for technical inspection at Santa Barbara. When all the returns were in he held the BM sports car record at 176.913.

AK Miller, naturally, was on hand, fresh from a post-Monza and Mille Miglia tour of Europe, to contend in DM class with his rapid but so far not entirely reliable *Caballo de Hierro*. Miller proved that his 395 cu. in. injected Chrysler special could move with the best by turning a one-way top of 177.42 . . . and then he blew, leaving Denny Larsen in undisputed command of the entire sports car category. When comparing the speeds of the Larsen, Arciero and Miller cars it's important not to overlook the significance of open cockpit versus aerodynamic coupe bodies

A promising performer that merits more than passing

BELOW: The fastest U.S.-built car ever run was the Kenz-Leslie Streamliner, built by Bill Kenz, driven by Roy Leslie. Powered by three flat-head Fords, the car turned 270.473 one way; 266.204 average.



DECEMBER '57

Bonneville Nationals

mention is the brand new special entered by John Teverbaugh of Concord Calif., another veteran of the salt. This car's gleaming plastic body is a blend of the best lines of D Jag and big Ferraris and Maseratis. Under the hood is a particularly sanitary installation of a 368 cu. in. Mercury with a mighty GMC blower coupled directly to the front of the crank. Among the car's carefully-engineered features is a professionally-designed braking parachute built into its tail. It was a severe disappointment that Teverbaugh's machine cooked up after a warmup run of only 135. It's good for at least another 35 mph and should do it next year.

Actually it's remarkable that out of so many cars that are so highly stressed, so few have serious mechanical trouble. Among the few obvious goers that also encountered disappointment from the start were the fine streamliners of John Herda and Chet Herbert. They could not be de-bugged in time. Although months and even years were invested in their preparation, cars capable of big speeds present unique problems. Consider just this one: where do you go to perform shakedown tests with a car capable of, let's say, 300 mph? The Herbert car, certainly, with its slippery shape and two 355 cu. in. Chryslers is going to go fast when it does crank on.

Descending to less hair-raising levels of speed, the next-fastest sports job was the C Jag of Joe Simpson of Stockton, Calif., breathing through a trio of dual-throat Webers. Simpson got his entry-fee's worth of rides, clocked a best 155.97. He was running in B Modified, but hot on his heels was the B Production Mercedes-Benz 300SL of Albert Schmidt of Cincinnati. No stripling, Schmidt nevertheless dominates his car like a bronc-buster on a mustang, charged 154.90 one way and set his class record at 150.67. The rapid stockbroker picked up the nickname of *Herr Doktor Ingenieur*.

Schmidt trailered his sports car from the east, but many were driven in. Ed Fusch of St. Louis drove his '54 Corvette with 365 cu. in. Chrysler, '41 Cad trans and 3.07 Olds rear end belowdecks. He wheeled directly off the highway, onto the salt, and steamed through the traps at 134. A plug change and he stepped up to 142. He pulled the dual four-throat carbs, installed Hilborn injectors (no ram tubes), clocked 148.02 . . . and drove home.

Much-closer-to-stock Corvettes turned imposing times. George Hanson's Ak Miller-equipped 340 cu. in. coupe made 144.00 one way, then set the C Production record at 144.322. Stanley Nelson's super-tuned, stock-injected coupe did 143.08 and George Hill showed what can be expected of a strictly-stock carbureted 283 by purring past the timer's stand with full mufflers at 127.29.

Duffy and Fish drove down from the State of Washington in what proved to be

the hottest T-bird, which they tuned until they got 136.98. But the most fabulous performance by a Ford was staged by the '56 stock-bodied Victoria of Carrol Miller of Houston. Only the tuned-length exhaust stacks protruding from neat holes in the front fenders suggested that the dual four-throat 302 cu. in. engine had been given some special attention. But this Texas boy had missed nothing. His closest competition in the hotly-contested C Coupe/Sedan Class turned 133.72. Miller screamed through at 149 on his first run . . . on pump gas . . . and set the two-way record at 150.097!

A hard-worked car that fascinated everyone was Bill Scace's Porsche 550 RS Spyder. Scace drove his 300SL out from Chicago and Bob Hirsch drove the Spyder, which was equipped with a Speedster windshield, muffler, and home-made top for the trek. This was probably the only car on the salt whose high-pitched, whining exhaust note could be heard the full length of the course. SCI Editor John Christy took the dohc pusher through the clocks at 131 but the salt was greasy and a big divergence between tach and time proved slippage. The rear swing axles were cinched down to give zero camber and larger patches of tire contact. That helped, and as the salt dried Hirsch began turning in the middle 130's. Finally, Scace was inspired to invest in sacks of flour totalling 80 lbs. With these as rear-end ballast and by tuning tire pressure the optimum was found at 40 lbs. flour and 30 psi in the skins. Hirsch ripped off the O Modified Class record at 135.772 and Scace himself — twisting it perhaps as only an owner feels free to do — cut himself a roaring one-way run at 140.62 mph.

Among the small foreign entries no one had more sport than the Stanford brothers from Los Angeles, with their hard-working Porsche 1600 coupe. The car ran steadily, day after day, gradually improving its 107 mph speed by a few hundredths, finally setting the A Production record at 107.932. Said the brothers, "We come here every year. We used to build our own cars and spend the whole week hard at work. This year we're going steadily and the car just runs like a watch." Mark Dees, a law student from Stanford University, also ran constantly in a Mercedes-Benz 220S sedan he had just brought over from Europe. He began by turning in the high 90's. Merely removing the car's fan gave him a satisfying 103.92!

Umbilically bound to the sports car contingent was a class winner that will be hailed in Coventry with mixed emotions. Externally, this was just another Model T Ford Coupe, chopped almost to the cowl, wearing a wind-splitting needle nose, and painted freight-train red. But tucked in the back of the cab was a ported, polished, tuned and groomed Jaguar engine. This discovery came as a bit of a jolt, but the capper was the fact that, to compete in their chosen class — A Competition Coupes — owners Dot and Bill Milliken found themselves with too many inches. So they merely pulled #6 piston and rod and bolted a counterweight to the crank throw, coming up with a displacement of 178 cu. in., which put them in the class normally dominated by four-bangers. The rec-

ord had been 116 but, burning pump gas, the Milliken T-bone Jag registered a top time of 127.11 and set a new class record of 125.596. The six exhaust stacks are still there because the car runs on all barrels at dry lakes meets.

Coventry's invasion does not necessarily mean that the day of Dearborn's four-bangers is done. Ford-four fans continue to be as fervently dedicated as *Bugattisti* and John Vesco stands as leading defender of their cause. His entry was one of the most interesting, exciting, original, beautiful and rebellious cars on the salt this year.

It's a canary-yellow and white streamliner. It's lean as an arrow and has only five sq ft of frontal area, including the wheels. It's 30 ins high, 18 ft long, weighs 1275 lbs wet and is powered by an injected 183 cu. in. four-port Riley Ford that will wind to about 6000 rpm. It's a jewel of workmanship and efficient packaging, right down to its rear end which harbors the world's narrowest swing axle. The body shell is flawless: Vesco hammered it out of aluminum sheet over an iron oxygen bottle. But we all were worried by the narrow track and the possibility of the car getting sideways.

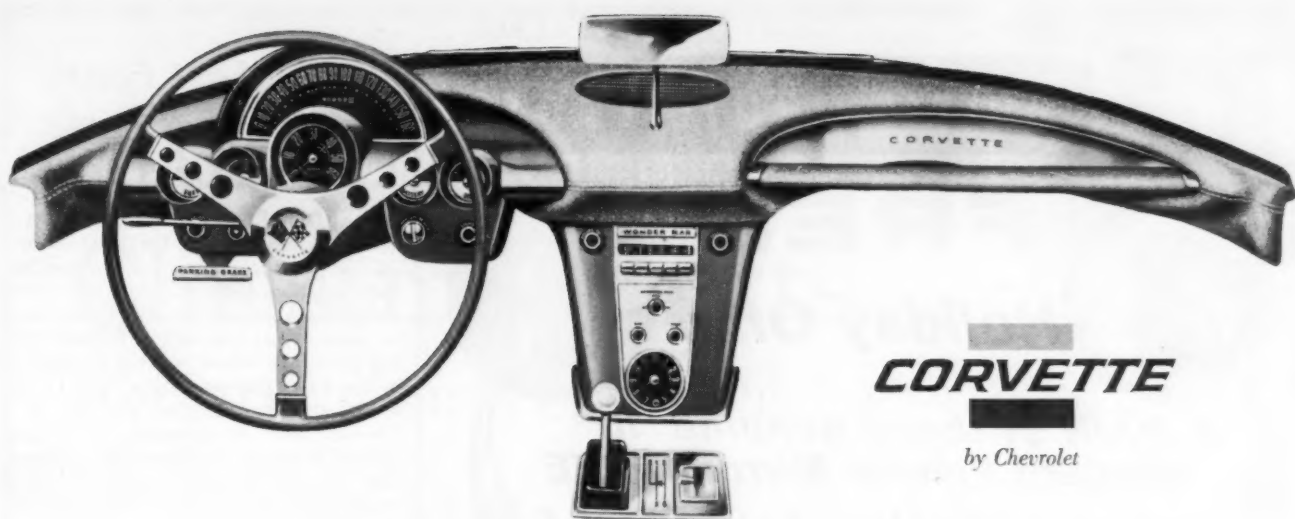
As it worked out, the engine was cranky and never hit properly on all four. But at a top speed of 166.66 mph, co-designer and driver Jim Dinkins reported that the car tracked true as an arrow, and he drove through fairly harsh side-gusts without feeling them. This definitely is a machine to watch next year. How fast it may go is anyone's guess.

Side winds are the greatest danger at high speed on the salt and when they hit a car the driver needs all the favorable odds he can get. The odds were kind this year. The first day of the meet Culbert's D Modified Roadster clocked a blazing 208.33! Then he went through even faster . . . and flipped. The car went over and over, tires blew, mag wheels shattered; all was wrecked but the car's frame and roll bar. Culbert miraculously emerged from this only slightly bruised and was discussing his experience with the boys in town that night! Fred Larsen had a similar adventure in a similar car, came out of it with the same good fortune. These are incredible experiences and their outcomes are tributes to the SCTA's soundly-based safety regulations and to the value of adequate roll bars, safety harness and protective headgear in particular.

This year the 200 MPH Club welcomed ten new members: Roy Leslie 266.204, Don Clark 248.281, Stirling Moss 245.64, Phil Hill 235, Robert Brissette 229.666, Howard Eichenhofer 209, Ted Fry 206, Gary Cagle 204.547, Bill Crossley 204, and Lloyd Scott 202.999. At the club's annual banquet given at Wendover's State Line Hotel, Leslie was elected president of the 35-man group for the coming year.

Next year will mark the tenth anniversary of the Bonneville National Speed Trials. The sports-car entry list is larger each year, and '58's promises to be the best yet. We'd like to see you on the salt and we'll publish the new regulations as soon as they are made official.

Griff Borgeson



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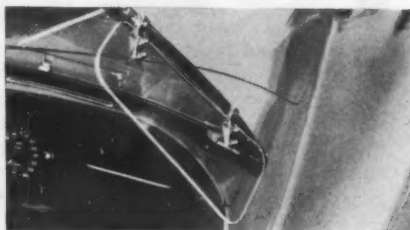
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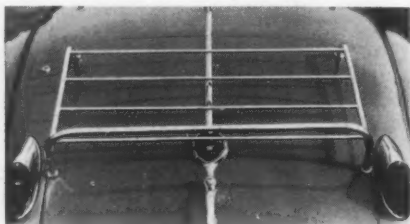
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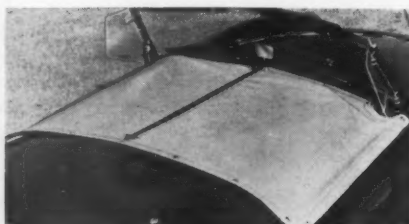


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Big Fast Four

(Continued from page 17)

doing it. They have heaters, radios, windshield washers, electric-lift windows and all the rest of the amenities, you can buy them for from \$3000 to \$6000, and they'll run past the average two-seater they meet, no matter what kind of pierced-back driving gloves the fellow is using to hang on to his adjustable steering wheel. To get speed equivalent to that put out by a Chrysler 300C, for example, you'd have to spoil \$7000 for an imported two-seater, and to get speed plus comparable luxury you'd better start with \$10,000—and that may not be enough, because you're going to have to engage the services of some Old World panel-beaters and upholsterers.

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In the European market, any of the cars we're talking about would be tagged "Gran Turismo." Consider another Chrysler product, the Plymouth Fury. This is a car that will go, and stick, with almost anything. It is probably the most roadable automobile made in America, and there are people who insist that no better-handling production car can be bought here at any price. That statement covers a lot of ground, ruling out as it does such venerated items as the XK140 and the 300SL. The Fury will turn inside some sports cars of considerable repute, and on a twisting road, an enterprising Fury driver who isn't carrying too many black points on his license can stand off an XK140. He'll be taken, of course, on the first long straight—an amusing statement when you think about it for a minute. "I murdered him in the bends but naturally he caught me on the straights" used

(Continued on page 46)

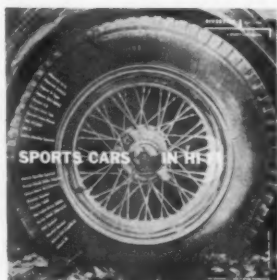
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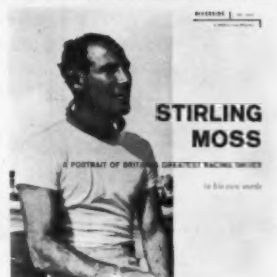
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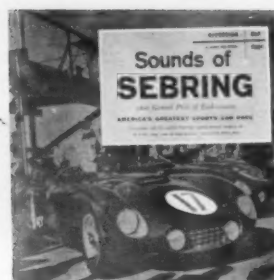
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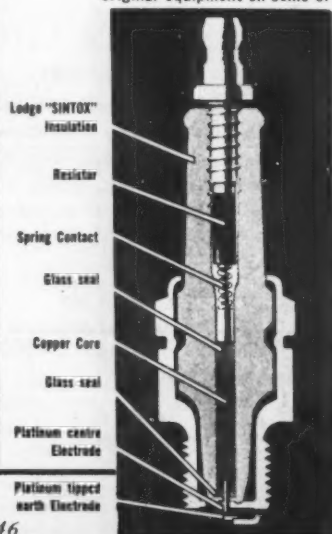
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Big Fast Four

(Continued from page 44)

to be one of the standard clichés of the sports-car driver rubbing the buttons of his striped weskit up against the bar and telling the other yo-yos about his last encounter with a V-8 Glugmobile on his way to the rallye. The shoe is now, as it were, on the other fellow's foot.

The current Detroit contribution to fast motoring—most of the spade-work has been Chrysler's—is the production of fast multi-passenger automobiles that are both comfortable and safe on the road. You don't have to be old enough to be reading this with bi-focals to remember when the law that said a safe car had to be sprung like a concrete basement had the same standing as the law of gravity. You could have comfort or you could have road-ability, but you couldn't have both. The first hole in this dike was dug in Europe, naturally, but, and also naturally, it was left to the Detroit slip-stick operators to put the polish on it. The *Fury's* springs and shocks are 25 per cent stiffer than those that hold up the standard Plymouth, yet the ride is not notably harsher. And at the car's top speed—115 mph—it's just as solid as it is at 60 or lower.

It would be amusing to take a *Fury* chassis to Italy, put a Farina hard-top coupe body and a Belzano or Fugatti name-badge on it and see what it would fetch in the open market. Around \$12,500 with no trouble at all, I'd guess.

Another nice little family carriage, suitable for shopping and short commuter hauls is the Dodge D500, which will perform these little tasks for you at around 110-112 miles an hour when you have no bananas for your corn-flakes, or the train is coming early around the bend. Thirty-three hundred U.S. dollars, approximately, will buy this six- or seven-place transportation. Not quite as special as the Plymouth *Fury*, the D500 is actually an engine option on the Red Ram power plant and costs \$113.65. It will move the *Coronet*, for example, to 60 in 8.5 seconds, to 100 in 20 seconds more, and it will show 83 miles an hour at the end of a standing quarter-mile. In addition to all this it's a safe, smooth-handling car, although it won't tolerate quite as much enterprise as the *Fury*.

Studebaker's *Golden Hawk* is in rather a separate sub-category in this listing of fast multi-passenger home-baked products, because the South Bend factory designed the car, or evolved it, as a compromise. The Studebaker people wanted a car that would look like and act like a sports car but would still transport a family through a rain-storm without getting anybody's feet wet. Chrysler, in announcing the 300C, the *Fury* and the D500, made no such claim. Chrysler's was the soft sell. The automobiles were turned loose to prove themselves, tagged only as production-line hard-tops. A subdued-but-purposeful roll of drums preceded the entrance of the *Golden Hawk*.

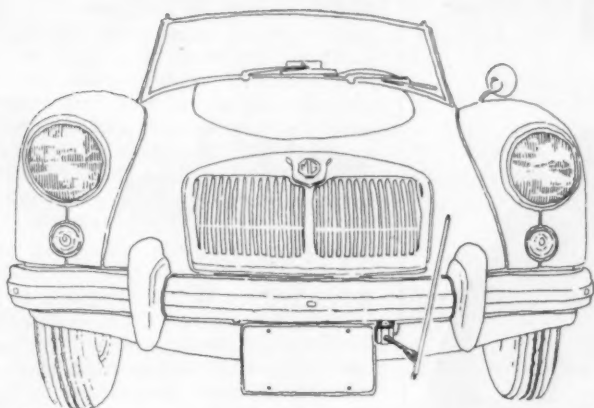
That being the case, it's odd that the *Golden Hawk*, while the second-fastest (Continued on page 48).

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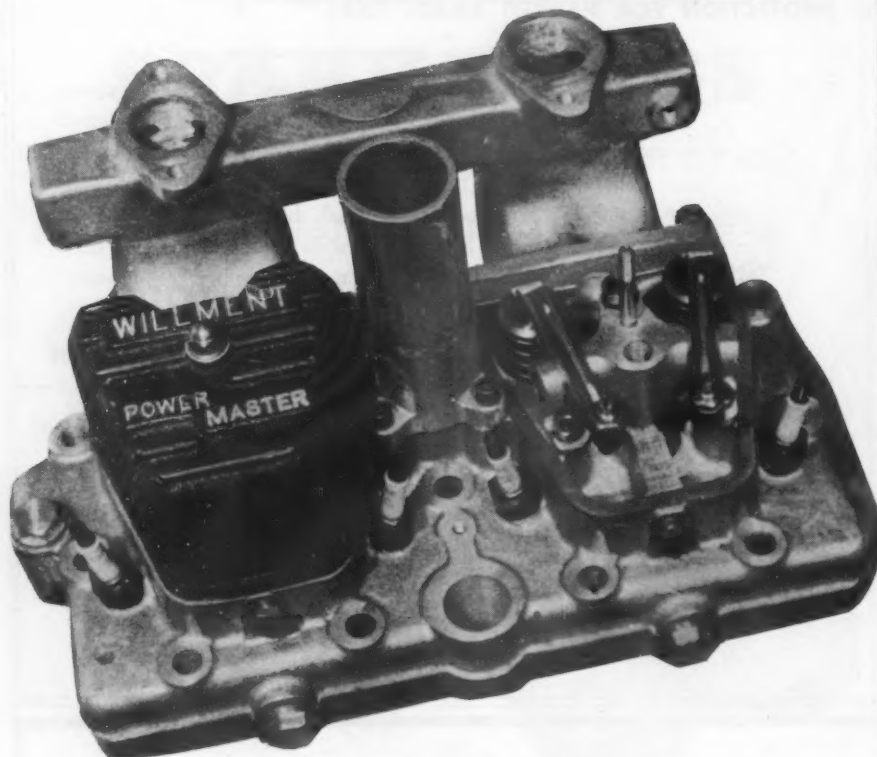
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Big Fast Four

(Continued from page 46)

of the lot—it has been tested at 127 miles an hour—is inferior to the others in handling. Not so much inferior, mind you, as to make it hazardous or anything even close to hazardous, but enough to make the difference between it and, say, a *Fury* pretty plain.

The first *Golden Hawk* was a gilded dog. It ran on a huge Packard engine that weighed a jolly 800-odd pounds,

every ounce of which tried to drag the front end off the road in a bend. It was a reasonably quick car, but some of the quickness was more theoretical than real in that it couldn't be used on anything but the Utah salt flats. When the intrepid *Hawk* pilot saw a corner coming up, he got off the loud-pedal if he wished to be intrepid on another day. Otherwise, he could crank the wheel over and sit there with his mouth open while the whole load mushed grumpily right off the road. I had this pleasure on several occasions and it was no pleasure.

But that *Hawk* is with us no longer. Modern science, or something, has come

up with a new, better, more sanitary *Hawk*, delivered direct from the finance company to you with something called a "Jet Stream Supercharger" (ah, there, mr. mccullough!) bolted to its new, smaller Studebaker engine. This device, which I understand works something like an electric fan shoved into the end of a drain-pipe, enables the smaller engine to deliver the same 275 horsepower produced by the old, bigger one. Thus it is, junior, that the *Golden Hawk* will do 125 miles an hour any old day, which is probably roughly 50 miles an hour faster than you ought even to think about driving. It is still not any threat to a Lancia in the road, adherence to, department, but the nose-heaviness of yore, while still evident, is not nearly so offensive. And while we're cutting the car into sections we should say that the back end has a limited-slip differential optionally available and this is a handy device in certain situations.

That brief beef over, we can say that the *Golden Hawk*, while not as clean in design, and not as well integrated as the Chrysler line, is still an extraordinarily handsome automobile, looks smaller, looks more purposeful, more sporting. (And remember, it's faster than a Corvette or a Thunderbird!) It is remarkably economical on gasoline, considering its performance, and it's about as well-built as a production-line car can be in America today. Very few things fall off brand-new *Golden Hawks*. And last but not at all least, it has the most sensible instrumentation being delivered anywhere in the world today at any price: speedometer, tachometer, fuel, amps, temperature, oil pressure and engine vacuum all black-and-white, all round, not a bilious-looking purple light bulb anywhere in sight.

For a long time it hasn't been fashionable to give Detroit credit for much but the ability to put wheels under anything and sell it, but the present trend toward fast, roadable, comfortable *Gran Turismo* automobiles is most laudable. To appreciate the ground that has been covered one has only to think back to just before the war, when 100 mph-plus automobiles offering any degree of civilized comfort and reasonable safety on the road were exclusively available to those who could afford to pay \$10,000 and up for them. Mostly, up. And you can call that \$15,000 in terms of today's money.

It hardly seems sensible not to have at least a pair of them in the barn.

—Ken Purdy

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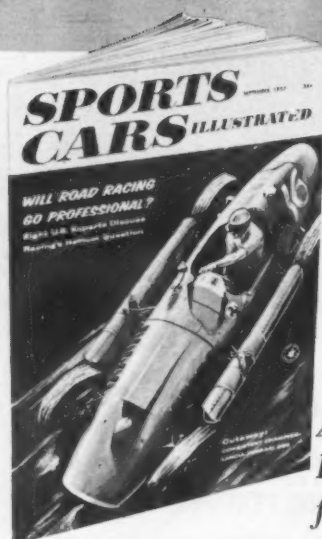
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'58 Corvette

(Continued from page 21)

the throttle a bit. On a really rough surface, the manner would be rather less unruffled, for the rear axle assembly is a heavy item of unsprung weight. After finishing the tests, we were told that the car we had been driving had not one of the HD suspension options. We were suitably impressed.

The fact that acceleration times for this car differ somewhat from those of our previous Corvette tests is more likely due to the easy-going driving technique used than anything else. Our test driver, Mr. Rose, who was provided by GM to do the driving while the Technical Editor did the timing, confessed that standing starts were not his specialty. As we have said before, they were not the Corvette's most polished maneuver either. It is a crying shame that the new "four-link" rear suspension on the regular Chevy's is not used here, where its ability to completely eliminate axle wind-up would be most appreciated. Parenthetically, this major advance in rear suspension (for American cars, that is) comes about as an incidental result of the switch to air suspension and the attendant loss of a means of location (provided formerly by the leaf springs).

Once under way, the Positraction differential really earns its keep and the acceleration is quite breath-taking. The gear ratios in the four speed gearbox (at last!) are marvelously spaced — the ratio step between gears ranges from 1.265 to 1.325 — and all gears are synchronized (will wonders never cease?). It is at least the equal of any gear box we've ever tried, not only with respect to the suitability of the ratios to the engine performance, but the smoothness of the synchromesh brings to mind the old metaphor about a hot knife and butter.

One fault which did show up toward the end of our acceleration runs was a trace of clutch slip when rushing the shift. When you consider that for the previous ten days this same car had been subjected to the machinations of various and sundry road-testing "experts" from all sorts of publications, then this is perhaps understandable.

Because our tests were made on a regular working day at the Proving Grounds, the normal "traffic" on the high speed straight (2½ miles of level, three-lane road in each direction with a banked turnaround at each end) prevented the Test Manager, Mr. Caswell, from allowing us to exceed 110 mph. With the same final drive ratio and engine as last year's F.I. test car, the top speed should be about the same, namely 125 mph, as the frontal aspect is not changed all that much.

As before, the throttle linkage seems a bit quicker than we would prefer, and with the faster bends requiring careful feathering, it is necessary to brace the edge of your right foot against the transmission bulge, pivoting it from there to

(Continued on page 52)



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'58 Corvette

(Continued from page 51)

operate the throttle. The steering wheel, in typical Chevrolet fashion, is right under the driver's chin. Even so, the Corvette is very easily controlled, the brake and clutch pedals are both well placed and smooth in operation, and there is plenty of room to stretch your left foot—or brace it, on sharp right turns. And brace it you must, because the Corvette's bucket-style seats are the best argument for seat belts we've seen. At the risk of repeating last year's criticisms all over again, you sit *on* them, not *in* them, and there is virtually no lateral support whatsoever. Seat belts will be standard equipment this year, which is admirable indeed; but better contoured seats would be another big step ahead, too.

The brakes were so good that we kept up our punishing test for twelve stops instead of the usual ten, and it was only in the last two that a slight but definite weakening showed up. We were therefore quite disappointed to find that these were experimental linings only. Still, it's encouraging, as it shows that Chevrolet's been doing a lot of work to provide the average Joe with significantly better brakes, without his being subjected to the drawbacks of the HD kit's Cerametallics—and with a fair amount of success.

For the price of the Corvette, check with your Chevrolet dealer; GM says they're all independent businessmen who are free to set their own prices. Especially on the options, we might add. Without quoting any figures, we'd say that on the basis of local (N.Y.) prices the Corvette ranks as a Best Buy, both as a boulevard sports car and as a competition model.

Stephen F. Wilder

MG Record Run

(Continued from page 23)

this car. You sit in the nose and have no view of the car at all. When I drifted away from the black line once, the car squirmed a few times on the damp salt and the feeling was as though you were sitting on a platform six feet ahead of the front wheels, with the car wagging behind you."

Moss' comments after his official record runs were cool and casual. "It's the fastest I've ever driven," he said, "but it really was a pleasant, uneventful ride. When accelerating, even in third gear I had to be careful to avoid snaking. You're not really in control in this sort of car . . . you just sort of guide it along. Gyroscopic wheel hop is pronounced at these speeds and you musn't fight the wheel; a light touch is OK, but to grip the wheel is to get into trouble. Steering a car like this is like keeping your balance while walking on a railroad rail—not terribly difficult, just tricky."

MG's decision to build the EX 181

(Continued on page 53)

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MG Record Run

(Continued from page 52)

meant, of course, a decision to improve on the car that already held the record for the company, Gardner's perennially successful EX 135. In spite of the age of the Gardner car, this was no easy job. Its Railton-designed body had a drag coefficient that was remarkably low even by today's standards and its supercharged 1106 cc engine had put out better than 200 belting bhp. Either more power or less drag would produce a faster car; MG decided to shoot for improvements in both directions and try to go a whole lot faster than 204 mph.

Getting more power was a relatively minor problem. A twin overhead camshaft head for the BMC B-series engine (used in the MG A) was already in an advanced state of development and had, in fact, been used in the 1956 record runs by MG EX 179 (SCI, Jan. 1957). The big problem that confronted Enever and his staff was that of finding a new, more slippery body shape. The obvious starting point was to reduce the car's frontal area and if possible its overall size, its total "wetted area." Since tire size and track determine the front shape, the actual starting point became tires: how small could a tire be made and still be capable of holding together at, say, 260 mph? Enever asked Dunlop to design a tire 23 inches high. Dunlop's philosophy has traditionally been "big speed: big tires" but they accepted the problem after getting Enever to give an inch. The 24-inch skins they made are oval in cross section, 5 inches wide and 4½ inches deep, and run on 15-inch rims. Around these tires the car was designed.

Enever's approach was not just to develop a better streamlined body but to learn all he could about the optimum shape and then, with this as a reference point, work backward, keeping compromises at a minimum. The Joukowski-section profile of Gardner's car and the more recent EX 179 could be improved on hardly at all, but their slab-sided transverse sections were far from the optimum answer. Enever subjected many models with good transverse as well as longitudinal streamlining to wind tunnel testing; the one with the lowest drag factor was the narrow-rear-tread configuration adopted for EX 181. Its ratio of length to thickness is about four to one, and the tapering rear reduces the wetted area and makes for better air flow along the sides. Says Moss, "It's very stable. If the back wheels start slipping a bit, and the rear of the car swings out at all, air forces on the body automatically make it line up behind the front wheels again. It drives itself, to a great degree."

Technically, EX 181 is most impressive as an exercise in aerodynamics and as an engineering *tour de force*, fitting driver and all the essential mechanisms into the smallest possible space. The de Dion rear axle is one of the many examples: it was no simple problem to fit a final drive housing, four universal joints, two wheels and the

(Continued on page 54)

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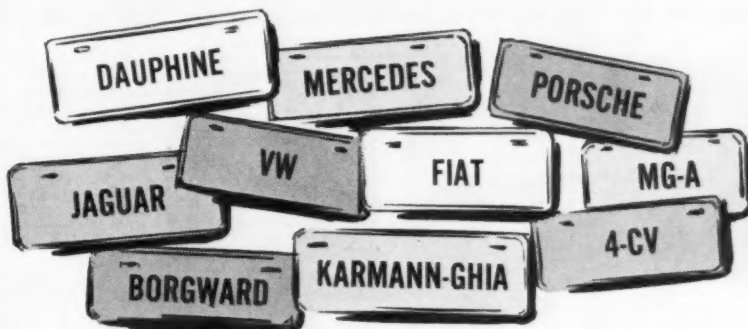


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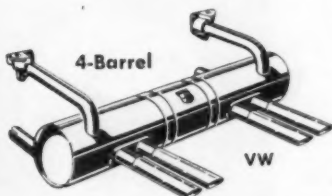
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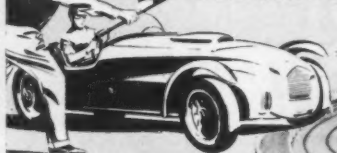
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MG Record Run

(Continued from page 53)

connecting shafts into a 30 $\frac{3}{4}$ inch track. EX 181 is one of the finest record machines the world has ever seen and you can count on it going even faster in the future. At 245 mph, with this year's power plant (294 bhp @ 7100 rpm) and gearing (1.94/1), there were still hundreds of revs in hand.

While EX 181's record attempt had advance publicity all over the world, EX 179's August 13th record runs on the Salt this year came as a total surprise. This is a heavy car for a streamliner—about 2000 lbs. — and it's little more than an MG A chassis with Gardner-styled body. Fitted with a stock (except for carburetion and exhaust) 948 cc, 58 cu. in. Morris Minor "1000" engine, it was driven by Dave Ash, Tommy Wisdom to three new International Class G—Standing Start records ranging from 1000 miles at 117.48 mph to 12 hours at 118.13 mph. This with a power unit rated at 60 bhp!

In addition, some 50 National Class G records were established, half of them standing start and half flying start. But with the exception of three marks in each field, (1000 miles, 2000 kilometers, and 12 hours), these latter were all broken three days later by Ash, Wisdom, and Phil Hill who had come up to join in the fun. An identical engine with a positive displacement Shorrock supercharger installed (which increased the output to 75 hp) was fitted to EX179. (For USAC and FIA speed records, blowers do not affect one's displacement class.) In a six hour run, Phil and Dave set the 44 National records referred to above plus six in International Class G—Standing Start.

The next day, in a final orgy of speed, Tommy Wisdom of London's *Daily Herald* took EX179 up and down the 13 mile straightaway to break 6 National and 2 International Flying Start marks for distances up to ten miles.

Intended primarily to keep the salt beds busy until Moss arrived (a week later than planned, as Pescara was put on the International Calendar), these Class G records using a Morris Minor engine are in some ways the most impressive of all the runs this summer.

Hard on the record-keepers, all this, but not bad for BMC, who chalked up another booming year at Bonneville.

Griff Borgeson

Next Month:

CROSS-ROADS DICE

Rallies, the
Irish Way

Mercedes 300SL

(Continued from page 27)

content. What a car! Never once did we find a road surface that the supple all-independent suspension couldn't gobble up without effort, even when cornering under a full head of steam.

Perhaps it's no longer amazing that a 3000 pound luxury car (it's really a convertible coupe, not just a roadster) should have such a surfeit of power, but to couple this with a lightness of control that amounts to delicacy is truly an astonishing engineering feat. The credit for this huge improvement over the gull-winged coupe, which, let's face it, had a reputation for tricky handling, must go to the new rear suspension with a mention of the use on the test car of Michelin X tires. The latter are perhaps well-known by now but for those who are unfamiliar with them, a word of explanation. They have layers of steel cord imbedded in the tread to stiffen them, while still permitting soft sidewalls. This enables a given cornering force to be achieved at a smaller slip angle than required of an ordinary tire, yet with little or no reduction in riding comfort.

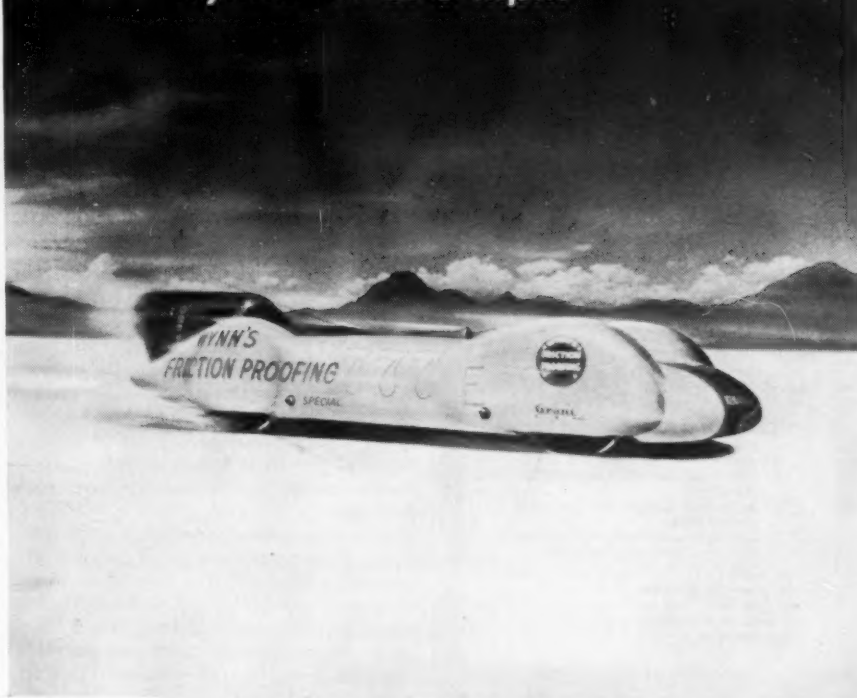
The lion's share of the credit however, must surely go to the rear suspension, with its combination of the low-roll-resistance coil spring arrangement and the low-pivot point swing axle, the latter stemming from Mercedes racing experience and already in production on several other models. (See SCI, April and Sept. '56 for an illustration.)

In addition to two normally situated coil springs, one above each axle tube, there is a horizontal one above the differential casing. It is loaded in compression by two brackets extending perpendicularly from each axle tube. For vertical motion the third spring stiffens the suspension, but when the car rolls, the spring is neither stretched nor compressed, as both lever arms move in the same direction, towards the inside of the corner. The Stuttgart engineers have thereby neatly overcome a weakness of the usual swing-axle layouts. Ordinarily, the rear end's roll stiffness cannot be reduced without also reducing spring stiffness, which unfortunately is all tied up with riding comfort and pitching problems. Mercedes owners may now have light handling, and still eat their cake of comfort, too.

During this first session a high-speed metering fault which developed put an end temporarily to our attempts at acceleration runs as the engine leaned out at the top end. A roadside check-up was called for. The complexity under the hood was strongly impressive. Unfamiliarity certainly breeds respect, as even the Technical Editor was unwilling to do more than inspect the hard-to-see but readily accessible spark plugs when misfiring arose. Despite widespread statement to the contrary, the 300SL is not as complicated to service as a jet-engined interceptor and you do not need a full time staff of mechanics to care for it. However,

(Continued on page 56)

The Wynn at 270 mph!



The Wynn's Friction Proofing Streamliner shatters every American speed record.

This sleek Streamliner sped across the Bonneville Salt Flats at a breath-taking 270.473 miles per hour to establish a new American speed record.

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Here are Wynn's Friction Proofing distributors Bill Kenz and Roy Leslie, with their Streamliner, just before the record-making run. Two engines drive the front wheels, and the third engine, separately mounted, drives the rear wheels. Each engine has a displacement of 304 cubic in. for a total displacement of 912".

Wynn's Friction Proofing products are also available in Canada and everywhere in the free world.

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Mercedes 300SL

(Continued from page 55)

it is not the sort of car you can have adequately serviced at just any old gas station. It must be serviced by well-informed and capable men or it may be returned to you in poorer shape than when you left it.

Reluctantly, we returned to New York through a slight drizzle, which pointed up once more the sure-footed behavior of this powerful machine.

A cheering sight on this trip back was the sight of an admiring young couple who waved at us so violently that they practically fell out of their MG.

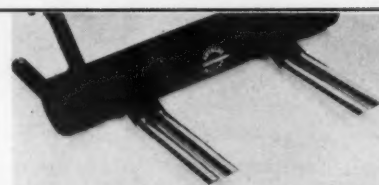
The M-B mechanics had corrected the fuel injector the next day, but by then the owner was anxious to rush off to the Holland (N.Y.) Hill Climb. Such are the vicissitudes of owning the first available roadster, that he was unsure, when we arrived at his home a week later to complete the tests, whether he'd placed 1st in D Production, 2nd in D Sports or 3rd in the C Sports category! We should have such problems!

The timed runs were made with permission from all concerned on an unopened section of the New York State Thruway not far from Buffalo. Paving operations at one end and hills at the other meant we were unable to get more than a mile run into the measured quarter mile. The speedometer needle was still climbing slowly as we flashed through on each of our four runs. With its 3.89 axle this car can probably surpass 130 mph with ease, given another mile or so to reach it. And with the 9.5 compression ratio, the factory's figure of 137 mph seems equally attainable.

On these runs, we noticed that the quick steering got lighter at very high speeds. On deceleration from 125, it felt much too sensitive, and this despite an increase of 44% in the steering gear ratio from the coupe, which we criticized in SCI, April '56 as "definitely heavy (but with) a wonderful feel." A small increase in caster angle might well pay dividends in high-speed stability. Fins, anybody? The top and windows were up on all runs and perhaps this may have moved the aerodynamic center of pressure too far forward. Increasing the pressure in the rear tires is definitely out, for we were already running 40 psi front and 46 psi rear, in accordance with Daimler-Benz instructions for top speed runs on Michelin X's. And talk about D-B thoroughness — for each of three types of tires — touring, super-sports or racing, and Michelin X, they list pressures for three different conditions of driving, ranging from all out racing down to cruising on winding roads at an average of only 90 mph (!). No doubt about it, 300SL pilots must dream for the days when the police and the populace are far from the highways.

With the pressures we were using, it required discretion to avoid wheelspin off the mark during the acceleration runs. But with the aid of the low-roll-resistance rear suspension, we were able to chop a tenth of a second off the coupes 0-30 time.

(Continued on page 57)



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Mercedes 300SL

(Continued from page 56)

But after the first shift, were were hopelessly behind as the roadster's 250 extra pounds began to make themselves felt. The shift from second to third was slow, as considerable effort seemed necessary to pop the lever into the third-gear slot. When this loosens up a bit, a half second could be shaved off all runs involving third. The first-to-second and third-to-fourth shifts were quick as a wink and without any gear crunching, either. Third gear featured a very vintage whine, more so than the other indirect ratios. First, incidentally, is also synchronized. The shift lever is well placed and does not require an extravagance of movement to reach or to use it.

From a standstill, the quarter mile came up in 16.5 seconds during the shift into fourth; we literally loafed across the line at 90 miles per hour. Clutch action was always smooth and positive, with nary a trace of slip.

Brakes, on the other hand, while free of fade and generally very smooth indeed, on this car were inclined to judder lightly at speeds below 10 mph after after we had finished our 10 rapid stops from 60 mph. This apparently is a matter of small adjustment between the wheel cylinder and the tip of the brake shoe. Whatever the reason, it is certainly uncomfortable, though it has no effect whatsoever on the braking at higher speeds, which is commendably good and well on a par with the rest of the performance of the car. Perhaps the figure of 168 square inches of brake lining area per ton has something to do with it. So do the really beautifully finned bi-metallic drums. These brakes have a vacuum servo assist, but it is not overdone; so we never had to apologize for pitching Mr. Curry into the windshield. This is more than can be said for some of our domestic sedans.

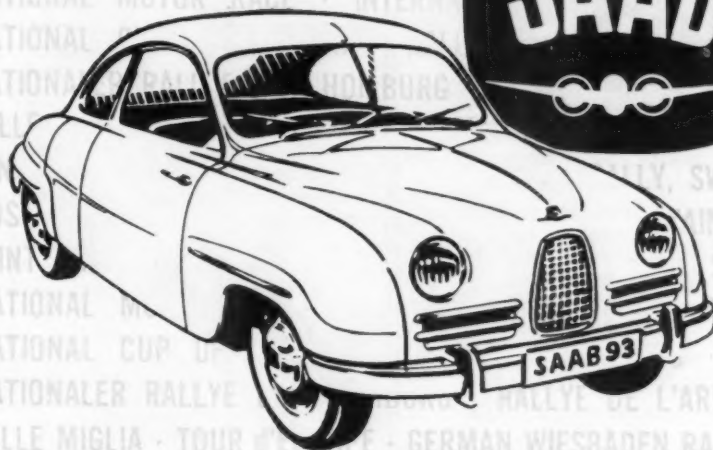
The surprising touch on this car, which may well be 1958's big threat in Class D "Production" SCCA racing, is that when you open the aluminum trunk-lid, you find that the generous space is not filled by a bulky spare tire at all. Instead, the tire's fitted under the floor of the trunk and there's plenty of room above for suitcases.

The bumpers are sturdier than they look, but when we followed the 300SL on rough roads in another car, they were seen to vibrate rapidly in a horizontal plane. This was the only symptom, incidentally, as that all-independent suspension can really take it. Very little reaction is thrown back to the driver on these rough roads, yet there is a very good sense of feel and the car seems very responsive under all conditions.

Designing a good convertible top is no easy project when weight is a consideration. Daimler-Benz have done well with this one, which retracts as much as it folds. To avoid the mechanism's rattling about, a latch (similar to the one on the windshield) locks it in place in the down

(Continued on page 58)

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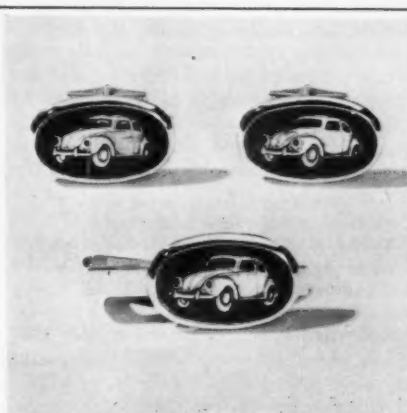


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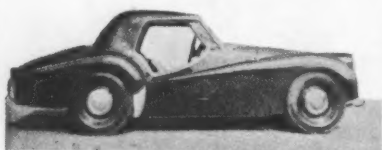
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Mercedes 300SL

(Continued from page 57)

position. When the top and windows are
up, wind noise is satisfyingly low.

The back window is only medium-sized,
so the car comes with an outside mirror
complete with a "Dagmar" front—just
like a racing car, and quite justifiable for
the speeds this car can reach.

The increase in price over the coupe
(\$10,970 vs \$8,135) is pretty steep; but
it's in about the same proportion as the
improvement in fun. The roadster, despite
its size and power, is a fun car. It can be
"played" around a corner in a manner,
and at speeds quite unbecoming to the
coupe or many other sports cars. The
small loss in acceleration, if not com-
pletely overcome with the 9.5 c.r. engine,
can certainly be made up for by ordering
the 4.11 gears—shift points then become
35, 60, and 85 and top speed according
to the factory drops to "only" 129 mph.

Our summary—a sure fire classic of
today.

Stephen F. Wilder

**Table Top
Grand Prix**

(Continued from page 29)

the wheel is made of softer rubber. The
fastest lap possible with the locked rear-
end car was approximately 70 scale mph,
while the fastest lap was 96.5 scale mph for
the new type car, owing to the bite coming
out of the corners and climbing the bridge
upgrade. I am told that speeds of 160
scale mph are possible with a ten foot
straight.

Also available are a 2.5 G.P. Ferrari, an
Austin Healey Sport, and a 2/4 Aston
Martin is now being prepared. For the
tests, the power was supplied by a 1 1/2
amp twelve-volt DC model railroad trans-
former. However, the power supply that
comes with this Scalextric set is in the form
of three Ever-ready #126 batteries en-
closed in a sturdy simulated brick house,
the type that may be found on several
British circuits. I am told by a representa-
tive of Scalextric that the cars perform
just as well on these batteries.

At the present time four sets are avail-
able. Each includes two cars, drivers, track,
batteries, fences, wire and lubricating oil.
However, one may purchase enough extra
track to lay out a fairly close replica of
any existing circuit in the world. I am
told that in a month or so it will be
possible to get special track that will fit
on the inside and on the outside of the
existing track so one may run three or
four cars abreast.

Set #3 has a section of flat cross-over
track like an ordinary cross-street, which
should prove to be a great place for "gyn-
ormous shunts." The fences at the turns
afford all the crowd-safety you will need.

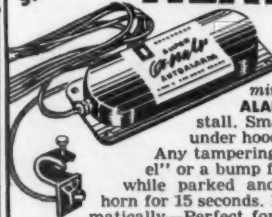
(Continued on page 59)

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larger area, thus preventing undue fatigue. A
layer of sponge rubber between the soles cushions
the heel when walking. The outer sole is continued
up the heel of the shoe, forming the counter and
taking the wear that comes from driving. Its flat
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Table Top Grand Prix

(Continued from page 58)

For the enthusiast who wishes to construct a permanent course set-up there are a myriad of landscaping possibilities from the model railroad kingdom: trees, shrubs, landing strips, bridges, tunnels, pits, and soldiers (which, slightly altered, will do for pit-crews). The track layouts may be modeled after existing courses, or you can dream up your own. A semi-permanent layout can be built on a few large sheets of plywood, that can easily be stored, altho' just to hook the track together and race can afford a great deal of fun. Especially if you, and several of your friends, own your own private cars.

I'm on my way back to Polk's now. Last night I went disguised as Sophie Tucker, but after three laps, they recognized me and gave me the black flag. You see, the I.T.C.R.A. (International Toy Car Racing Association) has banned me for unsportsmanlike conduct. They claim I did, by cunning and with malice aforethought, rub the rear wheels of an opponent's car with chicken fat, and they also found out that I lied about my age when I applied for my competition license. I told them I was only twelve, so Bob Coogan has been banned from I.T.C.R.A. racing for a whole year.

Maybe tonight they'll let Bob Coogan...

Elkart Lake

By Cumberford & Mott

(Continued from page 31)

Shelby (in the Class D Maser) stormed into the lead. Hill (in the Class C Ferrari) contented himself with dogging Hansgens' tail fin for a while before moving into second. (Walt soon began a series of pit stops—radiator hoses, etc. — which ended in his retirement after 19 laps.)

Crawford insisted he wanted to play with the big boys and dashed off in the Porsche RS to give them fits. The D type of John Gordon Benett/Charlie Wallace, the Mercedes of O'Shea/Thompson and the 3.5 Ferrari of Honest John Kilborn/Deacon Howard Hively (aided by pit signs such as "I Love You") began shifting through to join the front runners. And there they stayed throughout, finally finishing 4th, 5th & 6th respectively.

Twenty-six laps had elapsed, about an hour in time, when Phil Hill assumed the lead. Shelby, aided and abetted by an Allard that managed to get in everyone's way all day, had taken the escape road at station twelve. Hill was never headed, or even pushed, the rest of the day. (Shelby took the same escape road under similar conditions later in the day). And so it was Hill, Shelby and Crawford from that moment on.

Last year, when the comedy team of Kilborn and Hively won the six hour race

(Continued on page 60)

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A McGRAW-HILL BOOK

Elkart Lake

(Continued from page 59)

at Road America, they had covered 480 miles. Hill, in eight minutes and thirty seconds more than six hours, covered 500 miles. He averaged 81.4 miles an hour. His fastest lap was a 2:49.3.

The speed trap at Road America, set up along the short back stretch, revealed some interesting data on the different way the different cars attack this circuit. The D-Jags, Charlie Wallace in particular, clocked the highest speeds through there reaching 135.9 (this, mind you, is an average involving some acceleration out of one corner and the braking for the right angled number five corner, (it is not a top speed). Hill went through the traps consistently at around 121 miles an hour. The difference is in the braking. Ferrari's notoriously hard brakes are not meant for the short stop-and-accelerate courses that are characteristic of American road racing. Hill has learned to baby these brakes (one good charring from improper application and they are gone). For the first corner, for instance, he was backing off just after the start-finish line and touching his brakes first at the number five marker. (Porsches, for instance, could sail full bore up to four or even three before worrying about the matter of slowing.) "How fast could you go if brakes were no concern?" he was asked after the race. "Oh, 2:40, 2:41, maybe, for one or two laps," he said.

The 1-2-3 boys—Hill, Shelby and Crawford—all drove the entire distance unassisted. Each made two pit stops. All won their respective classes, and Crawford, who was particularly impressive in the Glenn Carroll-prepared Porsche, also easily won the handicap trophy.

Other hardware collectors for the day: First in Class B, John L. Haas/Robert H. Roloson (Corvette); first in Class E, Ebby Lunken/Jim Kimberly (1.9 Ferrari). Kimberly's two-litre Maserati went out after a few laps with Jack McAfee at the wheel. A broken valve spring apparently. Class G, Dr. and Mrs. M. R. J. Wyllie (Lotus).

Denise McCluggage

Aston Martin DBR1 300

(Continued from page 37)

Bentley's 1945 concept included a two-stage roller chain-drive for the cams, the intermediate sprocket located just below the top of the block and serving also to drive the water pump, which is carried in the cast timing chain cover. The new block was laid out to take the first—or lower—chain stage, and the water pump position is substantially as before. When the 60 degree head is fitted, as in this DBR1/300, the upper chain stage is simply added. For the new head under development, or any further projects, it is equally simple for the intermediate sprocket to drive a positive train of two gears to each cam. This

(Continued on page 61)

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Aston Martin DBR1 300

(Continued from page 60)

was done very neatly on one experimental engine.

Just as in the iron block, the water pump feeds a duct cast along the top of the exhaust side of the block. This directs the coolest water where it's most needed, and allows the coolant around the liners to circulate by convection only. Speaking of liners, they seem to have undergone some change. The Lagonda design, like Triumph and Alfa Giulietta among others, had flanges at top and bottom of the liner, which was compressed into place and sealed by the cylinder head alone. To relieve stress on the centrifugally cast wet liners, David Brown's engine team adopted Ing. Jano's neat Lancia solution. The liner is firmly clamped by a flange at the top only; the bottom end hangs in an appropriate bore and is sealed by "O" rings.

Dry sump lubrication was set up conventionally with a single pressure pump and double scavenging unit. Like the D Jag, oil is cooled by a radiator block to the right of the Marston water unit.

Perhaps in connection with some of David Brown's broader industrial interests, Wyer's crew adapted a C.A.V. diesel injection system to one DB3S engine with a 60 degree cylinder head. A colossal Mercedes-style air box was riveted up, with an air valve at the front end and ram tubes to the ports. Injection nozzles were out in the air box and aimed down the ram tubes, which looked like rather the long way around, but apparently someone is satisfied. The engine has performed fairly well in a DB3S. Like most technicians today, however, Wyer feels that fuel injection must be designed into an engine, and this may account for the recall of the 95 degree cylinder head that was first announced for the DBR1 series. This head was a nice enough rig, with exhaust valves inclined more than intakes, twin ignition, revised water circulation and the abovementioned gear cam-drive, but it just couldn't produce enough more beans than the older head to warrant a reliability risk. We think the Aston Martin boys have returned to the back room to devise something that will be more worth the trouble—perhaps direct injection and positively-closed valves. These days a new three liter engine should be in the 280 horsepower bracket, and thirty more ponies could easily be harnessed by the 'Ring winner's chassis.

To contrive a framework for Bentley's engine, David Brown had hired another renowned designer from the same era: Prof. Dr. Ing. Eberan von Eberhorst. First famed for his association with Dr. Porsche and for most of the design work on the 1938 Auto Union Grand Prix car, Prof. Eberan seemed a good choice to create the DB3 Aston Martin competition sports car. As it appeared in 1951, its big-tube frame, trailing arm front end, steering geometry and de Dion tube location were twins to that Auto Union car. For the DB3S the

(Continued on page 62)

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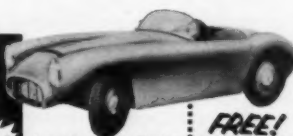
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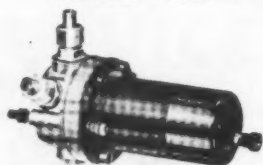
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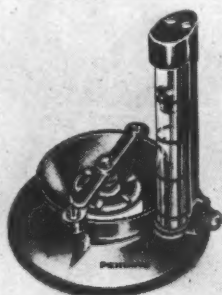
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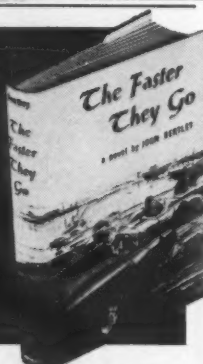


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Aston Martin DBR1 300

(Continued from page 61)

de Dion placement was changed from a Panhard rod to a vertical slide to eliminate snaking on bumpy straights, the same advantage with less friction given by a Watt's linkage on the DBR1/300. The two big tubes have now given way to a chromemoly truss frame, with a 60 pound cut in weight. The front end and steering remain, though wishbone layouts are under trial.

Sufferance was probably granted the front end because it was greatly improved from Auto Union days. One problem then was change in camber under heavy braking, thanks to weak upper trailing arms. Eberan's Aston design—with triangulated upper arms embracing hydraulic shocks—was the perfect answer. A torsion anti-roll bar, thin because of its shortness, connects those arms at the pivots. The bottom arms, single but heavier, turn in two big-needle roller bearings each and are connected by spherical blocks to transverse torsion bars. To get these in they had to be crossed, Kurtis-fashion, with each anchor above the opposite pivot. A single casting at each side takes all the stresses from arms, shocks and anchors, and feeds them into the chassis through six bolts. This structure, and the ball-jointed steering knuckle, is unchanged after six years.

The same can be said of the steering, which features a rack and pinion gear and a split, two-piece track rod. Now, as before the war, this still causes mild wheel fight in bumpy cornering. But the precision and simplicity seem to be worth it.

Taken by itself, the light, neat truss-type frame looks strong enough in bending but weak in torsion, especially from the stressed-sheet cowl forward. It would be weak if the engine and rear-mounted gearbox weren't bolted down firmly in a calculated manner.

Just aft of the front suspension on each side are two mounts, welded to drilled pillars. At the center of the firewall is a rectangular opening, into which a special separate clutch-housing casting is bolted at three points. A group of studs spaced on the back of the block in the shape of an inverted "U" attach the engine to this casting. The clutch within is a small-diameter dry multiple-disc rig developed for English race cars by Borg and Beck; and the starter motor protrudes out to the rear, above the drive shaft. Torque and engine rpm are carried back by a conventional Hardy Spicer prop shaft.

Rear suspension on the DBR1/300 is entirely new and very well worked out, having the "Lotus-like" quality of the frame itself. A two-piece de Dion tube is bolted together at the center, forming a vee behind the final drive unit. The hubs and most other fittings are welded up of light sheet stock, as very little meat is needed to support the Girling disc brake calipers. Parallel trailing arms on each side guide the hubs up and down, working in wide rubber bushes. Lateral loca-

(Continued on page 63)

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Aston Martin DBR1 300

(Continued from page 62)

tion, as mentioned, is by a Watt's linkage, with the vertical member straddling the axle tube in the center, and the guiding rods extending to each side of the frame. This locating method was used by Ray Martin on the 1953 Cooper-Alta for Stirling Moss, and a parallel development to that on the Aston appeared on the 1956 Alfa Romeo "Sportiva." In the G.P. field Vanwall is an adherent, while Connaught, BRM and Kurtis use variations on the theme. It has, in other words, been accepted.

Eberan's Astons had rear torsion bars across the frame, but the R1 has slightly longer bars placed lengthwise with levers at the back ends connected to the hubs by links. Shocks are Armstrong tubulars, placed well behind the hubs. Perhaps needless to say, every last chassis nut is split and cotter-pinned in place.

All these suspension parts are grouped respectfully around a monumental-looking final drive aggregation. As David Brown Industries are in the transmission business in a big way, the postwar Aston gearboxes have always been handsome in appearance and smooth to handle. Perhaps due to unfamiliarity with operating conditions over a rev range double that of commercial vehicles, however, some of the racing boxes and rear ends have tended to fall apart. There has also been much variation from car to car.

The DB3 had a synchronized five-speeder laid flat, in unit with the engine, and a hypoid rear end. With but four speeds and synchro, the DB3S box was arranged vertically and drove a spiral bevel gear set. Now the DBR1/300 appears with five constant-mesh (spur, not helical, to reduce thrust bearing complications) ratios selected by dog clutches, and a general layout reminiscent of the 1937 Mercedes W125 final drive. So far, this new box has not distinguished itself, apart from the outings in May, since it broke on the DBR1/250 prototype at Le Mans last year, and shed several cogs on both R1/300's in the latest 24 hours. It started to go bad in the Empire Trophy last spring, but didn't have enough time.

Drive from the prop shaft enters through a mildly-helical pair of gears at the front. These gears can readily be changed by removing the wired Allen-head cap screws and cover plate. The two gearbox shafts are placed across the chassis with the primary shaft to the front. It is driven by a straight-toothed bevel set and carries all the dog-clutch selectors. There are three parts to the case, and four bearings for each shaft, made possible by case separation on the shaft centerlines. First and second gear spur sets are on the left; third and fourth—most commonly used—are in the center, embracing a spur takeoff to the ZF differential above. Overdrive fifth and reverse are in the right hand section. In the right cover plate and driven by the primary shaft is

(Continued on page 64)

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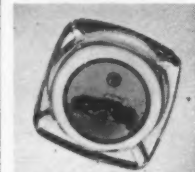
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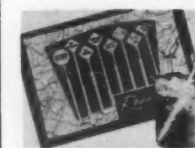
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Aston Martin DBR1 300

(Continued from page 63)

a gear-type oil pump which circulates lube through a small gilled-tube cooler in the right rear wheel well. The shifting rails are interlocked with a valving system, which directs oil under pressure only to those gear sets that are under load.

An elaborate gate up in the cockpit overwhelms the stubby lever and, Mercedes-like, has a system of sliding bars to guide the unwary driver through the five ratios. Most handlers so far have praised the ease and speed of shifting this box—when it lasts through the race, that is. The fully-machined half-shafts have Hardy-Spicer universal joints and splined couplings. Hung from one point high in the front and two lower down in the rear, the transmission contributes a lot to frame stiffness.

Moving the five speed box to the rear was more in accord with modern thoughts on weight and mass distribution—with which Prof. Eberan did not fully concur. Without fuel, which is stored right in the tail in Gallay tanks, both the DB3 and DB3S had about 56 percent of the weight on the front wheels. This, plus the suspension layout, gave them a basic understeer which allowed genuine drifting. But due to a low polar moment of inertia (engine in unit with gearbox, placed well back) the machines were still oversensitive to control in some high-speed situations. A dry DBR1/300 now has 52 percent of the weight carried at the front, and a much higher polar moment of inertia. As a result it's better than ever, especially on fast bends like those at Spa; and with Brooks it outthanked everything at the Nürburgring.

Always faithful to Girling, Aston Martin waited until 1955 before appropriate disc brakes were available, but since then the simple single-spot units have been used exclusively. In '56 they were modified to allow 45-second replacement of the thick Ferodo pads. At first specially offset Dunlop wire wheels were required to leave room for the discs and calipers, but for the DBR1 Borrani wheels have been specified. For some time Astons have enjoyed the complete attention of the Avon Tire Competition Department: Avon serves only Aston, and Astons use no other tire.

We cannot recall having heard one nasty remark about the looks of any Aston Martin—styling is a big factor with them, even on the starkest racing car. Body designer Frank Feeley gets credit for many jobs well done. One instance of apparent confusion was the front end of the DBR1/250 prototype (Le Mans, 1956), but the shapes were perfectly cleaned up for this year. Aerodynamics are always sound enough, though mainly in the "draw, cut and try" class.

The shell of the latest car is pounded out of aluminum-magnesium alloy sheet

(Continued on page 65)

Classified

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Aston Martin DBR1-300

(Continued from page 64)

and hung on a light tubular framework. Dzus fasteners are used wherever practical, such as on sections of the belly pan. All the body shapes seem to be clean except for one quirk that manages to bend water from the wheels into the cockpit on a wet track. Smith instruments decorate the typically English dash, which features a mammoth 8000 rpm tach and smaller dials for charging, water and oil temperatures, and oil pressure. Pivoted from the floor, the drilled brake and clutch pedals are bracketed by the accelerator and by a "dead pedal" for bracing the left leg.

End product of all this is a versatile competition car which must now be reckoned as a threat in any major sports car race. While in full agreement with present design trends, it happily includes many typically English ideas. It isn't mere slavish tracing of the Italians. Though not yet fully proven, the DBR1/300 seems to be more than a match for the 300S Maserati, which would mean that the English have the fastest three liter sports car going. In all probability the DBR1 series will be the basis for Reg Parnell's competition program in the near future, and there may be the embellishment of a newer engine, as discussed. There's also the DBR2 to consider, but this is literally another story which seems to us to have less lasting significance than the R1, though it is more likely to succeed as a basis for a production car.

"No comment," was John Wyer's quick answer when asked if Aston Martin had a Grand Prix car in the works. However, you may recall the *Formule Libre* single-seater with which Parnell snuck off to Australia over a year ago. You may also note how suitable the DBR1 suspension parts and gearbox would be to a G.P. car, and that next year's Formula is for 2½ liter cars on gas, with which Wyer's crew have plenty of experience. That heavy engine block was always an obstacle, but now that it's been given a diet... it's all up to David Brown, of course; but at this rate he'll soon have a new world to conquer!

Karl Ludvigsen

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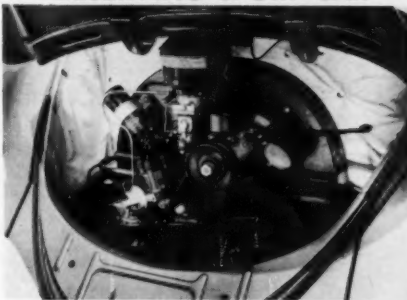


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